LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

Date: September 23, 2020

From: Lake Whatcom Water & Sewer District

RE: Meeting Procedures During the Covid-19 Emergency

Lake Whatcom Water & Sewer District continues to operate under adjusted procedures in order to provide continuous service to our customers. That said, we are taking precautions in an effort to protect the health and safety of our staff, commissioners, and customers. Our lobby is currently closed to the public, and we are practicing social distancing guidelines as suggested by Governor Inslee and the CDC.

For the foreseeable future, Commissioners will be attending regular meetings by phone. Per Governor Inslee's Proclamation No. 20-28.3 amending his Stay Home, Stay Health proclamation, the District will provide access to interested public via phone/internet utilizing the GoToMeeting platform.

If you would like to attend the September 30 regular meeting, details can be found below. In this evolving climate, we are committed to doing everything possible to provide opportunity for public comment as well as promote health and safety. As such, the District requests that if possible, public submit comments in written form by noon the day before a scheduled meeting for inclusion in the meeting discussion.

We appreciate your understanding and patience during these uncertain times. If you have any questions, please contact Administrative Assistant Rachael Hope at rachael.hope@lwwsd.org or 360-734-9224.

September 30, 2020 Regular Board Meeting
Wed, Sep 30, 2020 8:00 AM - 10:00 AM (PDT)

Please join my meeting from your computer, tablet or smartphone.
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LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS
AGENDA
September 30, 2020
8:00 a.m. – Regular Session

1. CALL TO ORDER

2. ROLL CALL

3. CONFIRMATION OF COMPLIANCE WITH REMOTE MEETING ATTENDANCE PROTOCOLS

4. PUBLIC COMMENT OPPORTUNITY
   At this time, members of the public may address the Board of Commissioners. Please state your name prior to making comments.

5. ADDITIONS, DELETIONS, OR CHANGES TO THE AGENDA

6. CONSENT AGENDA

7. SPECIFIC ITEMS OF BUSINESS
   A. Presentation—Sudden Valley Water Treatment Plant Alternative Analysis
   B. Date Change—First Board Meeting of November in Recognition of Veterans Day
   C. Agate Creek Streambed Restoration Contract Close-out
   D. On-site Sewage System Impact Assessment Findings Discussion

8. OTHER BUSINESS

9. STAFF REPORTS
   A. General Manager
   B. Engineering Department
   C. Finance Department
   D. Operations Department

10. PUBLIC COMMENT OPPORTUNITY

11. ADJOURNMENT

AGENDA BILL Item 6	**Consent Agenda**			
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Rachael Hope		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. See below		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

****TO BE UPDATED 9.29.2020****

BACKGROUND / EXPLANATION OF IMPACT

- Minutes for the 8.26.20 Regular Board Meeting
- Minutes for the 9.9.20 Regular Board Meeting
- Payroll for Pay Period #19 (09/05/2020 through 09/18/2020) totaling $45,705.84
- Payroll Benefits for Pay Period #19 totaling $51,124.07
- Accounts Payable Vouchers total to be added

FISCAL IMPACT

Fiscal impact is as indicated in the payroll/benefits/accounts payable quantities defined above. All costs are within the Board-approved 2020 Budget.

RECOMMENDED BOARD ACTION

Staff recommends the Board approve the Consent Agenda.

PROPOSED MOTION

A recommended motion is:

"I move to approve the Consent Agenda as presented."

AGENDA BILL Item 7.A	**Sudden Valley Water Treatment Plant Alternatives Analysis Briefing #1**			
DATE SUBMITTED:	September 17 , 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, Assist. GM/District Engineer		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Draft Technical Memorandum – Pump Performance Test 2. Draft Technical Memorandum – Chlorine Contact Basin Coating Inspection		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

The existing Sudden Valley Water Treatment Plant (SVWTP) is located along Morning Beach Drive near the shores of Lake Whatcom and was constructed in 1972. The treatment plant utilizes chemical coagulation, flocculation, rapid media filtration, chemical pH adjustment, and gas chlorine disinfection prior to temporary storage within a 225,000-gallon reservoir also located at the site.

In July 2020, Gray & Osborne (G&O) completed a condition assessment in which engineers evaluated the SVWTP from a process, structural/architectural, mechanical, and electrical perspective. The assessment identified both high and low priority items that should be completed to maintain current and reliable function of the SVWTP into the future.

Following the condition assessment, G&O was contracted to perform an alternatives analysis to help the District select and prioritize specific short- and long-term improvements to the treatment equipment and processes currently in use. The work has been broken down by major systems. For each system, G&O will develop alternatives and document each in the form of a technical memorandum. The results from each system analysis will be presented to the Board at regularly scheduled board meetings.

All of the technical memoranda will ultimately be attached and summarized in an Alternatives Analysis Report. The Report will include comparisons and rankings, recommendation on modifications to system, cost estimates, figures to relay relative space requirements, and more.

The major systems as written in the scope of work agreement are:

- Pump Performance Test
- Chemical Systems Analysis
- Disinfection Systems Analysis
- Backwash Systems Analysis
- Filtration System Analysis
- Tier 2/3 Seismic and Structural Analysis
- Structural/Arch Workspace Analysis
- NACE III Coating Inspection

G&O has completed alternative analyses for the Pump Performance Test and 2.8 NACE III Coating Inspection systems. Draft technical memoranda are attached. The consultant will summarize their findings and recommendations in a presentation, and collect Board comments or questions.

FISCAL IMPACT

This presentation is for discussion only; it is too early in the planning process to estimate fiscal impacts of plant improvements.

RECOMMENDED BOARD ACTION

No action is recommended at this time.

PROPOSED MOTION

Not applicable.

Gray & Osborne, Inc.
CONSULTING ENGINEERS

GRAY & OSBORNE, INC. 85th ANNIVERSARY 1935 2020 CONSULTING ENGINEERS

TECHNICAL MEMORANDUM 20434-1

TO:	BILL HUNTER, P.E., ASSISTANT GENERAL MANAGER/DISTRICT ENGINEER
FROM:	KEITH STEWART, P.E. RUSSELL PORTER, P.E.
DATE:	SEPTEMBER 23, 2020
SUBJECT:	SUDDEN VALLEY WTP PUMP PERFORMANCE TESTING LAKE WHATCOM WATER & SEWER DISTRICT, WHATCOM COUNTY, WASHINGTON G&O #20434.00

INTRODUCTION

In 2019, the Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne to perform a condition assessment for their existing Sudden Valley Water Treatment Plant (WTP) as part of a larger effort to analyze the District's water treatment facilities in order to prioritize funds for rehabilitation, modification, and/or replacement projects. The goal of the assessment and subsequent analysis is to identify potential improvements for the existing structures and treatment processes in an attempt to maximize treatment efficiency and extend the operational life of these facilities. The reports and technical memoranda generated as part of this assessment project will be used to develop a strategy for prioritizing modifications to the WTP to ensure it can efficiently and cost-effectively provide clean, potable water for the existing and projected service areas.

This report summarizes the findings of the pump performance analysis conducted on August 18, 2020.

BACKGROUND AND EXISTING FACILITIES

The District operates three Group A water systems – South Shore (DOH 95910), Eagleridge (DOH 08118), and Agate Heights (DOH 52957) – all of which are in and around the shores of Lake Whatcom, which lies southeast of Bellingham in Whatcom County, Washington. The District serves approximately 3,900 residential and commercial water system connections with a residential population of approximately 10,000 people.

1130 Rainier Avenue S., Suite 300 Seattle, Washington 98144 (206) 284-0860 Fax (206) 283-3206

The South Shore system is the largest of the three systems and is supplied wholly by water treated at its Sudden Valley Water Treatment Plant. In addition to the WTP, the District also owns and maintains surface water source, storage, and distribution system facilities. The distribution system includes multiple pressure zones, four booster stations, and approximately 2.8 million gallons (MG) of storage in five reservoirs. The District also maintains a secondary intertie with the City of Bellingham Water System (DOH 50600) that is used only during emergency situations.

The existing WTP is a rapid-rate, direct filtration plant with a rated capacity of 2.0 million gallons per day (MGD) but currently operates at approximately 1.0 MGD (700 gallons per minute (gpm)). The WTP is housed in a partially below-grade concrete building located on Morning Beach Drive approximately 1 mile northeast of the intersection of Lake Whatcom Boulevard and Marigold Drive. The facility was constructed in 1972 and has undergone several minor improvements since that time, but was most recently upgraded in 1992. The WTP provides coagulation, flocculation, filtration, disinfection, and chlorine contact time before treated water is pumped to the distribution system and storage reservoirs.

In February 2019, engineers from Gray & Osborne visited the WTP to conduct the condition assessment mentioned previously. As part of this assessment, Gray & Osborne evaluated the treatment components from electrical, mechanical, process, and structural perspectives and documented issues found during the visit that did not meet current codes or could be modified to optimize treatment efficiency. The assessment's findings and subsequent recommendations were documented in the *Sudden Valley Water Treatment Plant Assessment Report* (Assessment Report) produced by Gray & Osborne in July 2020. This report provides the basis for the analysis below as well as analysis for additional components at the WTP.

The WTP utilizes raw water pumps to move water from the Lake Whatcom source to the media filters, clearwell transfer pumps to move water from the clearwell to the chlorine contact basin, and finished water pumps to move water from the chlorine contact basin to the District's Division 7 Reservoir, Division 22 Reservoir, and the distribution system. Technical information for these pumps is provided in Table 1.

TABLE 1

WTP Pump Summary

Parameter	Value
Raw Water Pumps	
Type	Horizontal, Centrifugal
Quantity	2
Location	WTP Main Building
Year Installed	1992
Make	GS Aurora
Model	3PC-134075
Impeller (in.)	12
Suction/Discharge Size (in.)	6/6
Design Flow (gpm)	1,400
Design Head (ft)	40
Electrical	20 hp, 3 ph, 60 Hz, 1,180 rpm
Clearwell Transfer Pumps	
Type	Vertical Turbine Lineshaft
Quantity	2
Location	WTP Main Building
Year Installed	1992
Make	Peerless
Model	12HXB
Impeller (serial number, size)	2608379, 7-27/32″ x 8-5/16″
Suction/Discharge Size (in.)	10/10
Design Flow (gpm)	1,400
Design Head (ft)	43
Electrical	20 hp, 3 ph, 60 Hz, 1,760 rpm

TABLE 1 – (continued)

WTP Pump Summary

Parameter	Value
Finished Water Pumps – Division 7	
Type	Vertical Turbine
Quantity	2
Location	Finished Water Pump Building
Year Installed	1992
Make	Peerless
Model	12LD
Impeller (serial number, size)	2649365, 8-5/8″ x 9-7/16″
Number of Stages	6
Suction/Discharge Size (in.)	6/6
Design Flow (gpm)	700
Design Head (ft)	445
Electrical	100 hp, 3 ph, 60 Hz, 1,760 rpm
Finished Water Pumps – Division 22	
Type	Vertical Turbine
Quantity	2
Location	Finished Water Pump Building
Year Installed	1992
Make	Peerless
Model	12LD
Impeller (serial number, size)	2649365, 8-3/4″ x 9-19/32″
Number of Stages	8
Suction/Discharge Size (in.)	6/6
Design Flow (gpm)	700
Design Head (ft)	608
Electrical	150 hp, 3 ph, 60 Hz, 1,760 rpm

Raw Water Pumps

Both raw water pumps are located within the WTP Main Building in a below-grade pit adjacent to the flocculation tank. The pumps are accessed by a single vertical ladder. Although each pump is capable of pumping 1,400 gpm, WTP staff have adjusted the pump output to 700 gpm in order to maximize treatment efficiency and comply with previous directives from the Washington State Department of Health (DOH). The pumps are operated on a lead/lag schedule and are maintained in accordance with the

manufacturers' recommendations. The raw water pumps are controlled by two across-the-line motor starters, both of which are located in Motor Control Center 3 (MCC3) in the WTP Main Building. MCC3 is located in the northeast corner of the building adjacent to the soda ash storage area. Photos of MCC3 are provided in Exhibit A.

The Assessment Report noted that both pumps were installed in 1992 and are in fair condition. The motor for Raw Water Pump 2 was replaced in 2002. The Assessment Report also noted that both of these pumps are likely nearing the end of their reliable useful life and recommended that the District conduct a performance test for these pumps, and depending on the results of that testing, replace both raw water pumps. The Assessment Report also noted that MCC3 was in fair/poor condition due to its proximity to soda ash chemicals as well as moisture. MCC3 exhibits a moderate level of corrosion and the Assessment Report recommended that the District replace MCC3 as part of any modifications to the raw water pumps and that they consider chemical storage and exposure to moisture before selecting a final installation location for these components. Lastly, the District has expressed interest in controlling these pumps using variable frequency drive (VFD) motor starters, which will provide additional operational flexibility for the treatment process, equipment, and staff.

Clearwell Transfer Pumps

Both clearwell transfer pumps are located within the WTP Main Building near the entrance to the WTP, above the below-grade clearwell. The pumps alternately operate based on the water level within the clearwell and cycle on and off to move water from the clearwell to the chlorine contact basin. The chlorine contact basin is a 225,000-gallon cylindrical welded steel tank with baffles and is located between the WTP Main Building and the Finished Water Pump Building. The clearwell transfer pumps are alternated on a lead/lag schedule and are maintained in accordance with the manufacturer's recommendations. The pumps are critical for supplying the chlorine contact basin, which is a vital component of the treatment process and is used to provide contact time (CT) for disinfection. The transfer pumps are controlled by two across-the-line motor starters, both of which are located in Motor Control Center 2 (MCC2) in the WTP Main Building. MCC2 is located along the south wall of the WTP Main Building. Photos of MCC2 are provided in Exhibit A.

The Assessment Report noted that both clearwell transfer pumps were installed in 1992, are in fair condition, but are likely nearing the end of their reliable useful life. The Assessment Report recommended that the District conduct a performance test for these pumps, and depending on the results of that testing, repair, rehabilitate, or replace both clearwell transfer pumps. The Assessment Report also noted that MCC2 was in good/fair

condition, but because of its age is no longer supported by the equipment manufacturer. As such, acquiring spare parts has become increasingly difficult and expensive. MCC2 exhibits a moderate level of corrosion and the Assessment Report recommended that the District replace MCC2 as part of any modifications to the clearwell transfer pumps and that they consider chemical storage and exposure to moisture before selecting a final installation location for these components. Lastly, the District has expressed interest in controlling these pumps using VFD motor starters, which will provide additional operational flexibility for the treatment process, equipment, and staff.

Finished Water Pumps

All four finished water pumps are located in the Finished Water Pump Building. The pumps are fed from a common 10-inch diameter header that provides water from the chorine contact basin. Each set of pumps alternately operate based on the water level within the controlling reservoirs (Division 7 or 22). When the water level within the controlling reservoir reaches the pump off set point, the finished water pumps de-energize and remain offline until the water level in the controlling reservoir reaches the pump on set point. The finished water pumps are alternated on a lead/lag schedule and are maintained in accordance with the manufacturer's recommendations. The pumps are controlled by across-the-line motor starters, all of which are located in Motor Control Center 1 (MCC1) in the Finished Water Pump Building. MCC1 is located south of the finished water pumps in the middle of the Finished Water Pump Building. Photos of MCC1 are provided in Exhibit A.

The Assessment Report noted that all four pumps were originally installed in 1992, but are in good condition. The Assessment Report also noted that all of these pumps may be nearing the end of their reliable useful life and recommended that the District conduct a performance test for these pumps, and depending on the results of that testing, repair, rehabilitate, or replace the finished water pumps. The Assessment Report also noted that MCC1 was in good condition, but given its age is no longer supported by the equipment manufacturer. As such, acquiring spare parts has become increasingly difficult and expensive. The Assessment Report recommended that the District replace MCC1 as part of any modifications to the finished water pumps and that they consider the location of other electrical equipment before selecting a final installation location for these components. Lastly, the District has expressed interest in controlling these pumps using VFD motor starters, which will provide additional operational flexibility for the treatment process, equipment, and staff.

PUMP PERFORMANCE TESTING

On August 18, 2020, Keith Stewart from Gray & Osborne travelled to the Sudden Valley WTP to conduct a performance test of the pumps in use at the facility. WTP Lead Operator Kevin Cook and District Electrician Ken Zangari were also present and assisted with the testing.

The specific testing protocols are highlighted below, but generally, each pump was energized and allowed to equilibrate at its typical operating flow and conditions. From there, the discharge isolation valve associated with each pump was partially closed and the flow, discharge pressure, inlet pressure, and motor amperage were measured and recorded. This process was repeated for several additional flows. Once the test was completed, the discharge valve was fully opened and the pump was de-energized. All four finished water pumps were analyzed in a similar fashion.

Finished Water Pumps

The finished water pumps and MCC1 are shown as Figures A-1, A-2, and A-3 (Exhibit A). Each pump is equipped with manual isolation valves, hydraulic control valves, and inlet/discharge pressure gauges. The discharge piping from each pump connects to a common header, which exits the building below grade. Isolation valves are 6-inch butterfly valves and typically operate in the fully open position. Control valves for all four pumps are 6-inch Cla-Val Model 60-11BY. Pressure gauges are standard glycerin-filled units suitable for potable water service. The existing pressure gauges are at least 8 years old and have not recently been calibrated. Flow for Division 22 pumps is measured by an 8-inch Endress & Hauser magnetic flow meter located in a buried vault on the north side of the Finished Water Pump Building. This meter was installed in 2019 and the flow value for this meter is displayed on a remote display located on the east wall within the Finished Water Pump Building. Flow for Division 7 pumps is measured by an 8-inch Badger magnetic flow meter located in a buried vault southeast of the chlorine contact basin. This meter was installed in 2006 and the flow value for this meter is displayed on a remote display located on the east wall within the Finished Water Pump Building. Amperage across the motor was measured by an ammeter placed around the load wire within the motor control center cabinet as shown on Figure A-2.

For this analysis, finished water flow, motor amperage, discharge header pressure, and discharge piping pressure were measured at various discharge isolation valve positions. The data collected for the Division 7 Finished Water Pumps and the Division 22 Finished Water Pumps are listed in Tables 2 and 3, respectively. These data are also shown graphically on Figures 1 and 2.

TABLE 2

Division 7 Finished Water Pump Testing Summary

Valve Closure (no. of turns)	Flow (gpm)	Discharge Pressure (psi)	Header Pressure (psi)	Inlet Pressure (psi)	Net Pumping Head (psi)	Amperage (amps)
Finished Water Pump 7-1						
20	807	183	170	6.4	176.6	116.8
10	803	183	170	6.5	176.6	116.6
8	799	184	170	6.5	177.6	116.4
6	793	185	170	6.5	178.5	116.5
4	775	188	169	6.5	181.5	115.8
3	749	194	168	6.5	187.5	114.8
2.25	696	204	165	6.6	197.4	112.4
Finished Water Pump 7-2						
20	820	179	168	6.8	172.2	117.9
10	815	180	169	6.8	173.2	117.6
8	809	180	168	6.8	173.2	117.3
6	807	181	168	6.8	174.2	117.3
4	786	184	168	6.9	177.1	116.7
3	754	190	168	6.9	183.1	115.3
2.5	660	206	165	7.0	199.0	111.6

TABLE 3

Division 22 Finished Water Pump Testing Summary

Valve Closure (no. of turns)	Flow (gpm)	Discharge Pressure (psi)	Header Pressure (psi)	Inlet Pressure (psi)	Net Pumping Head (psi)	Amperage (amps)
Finished Water Pump 22-1						
20	730	254	262	7.3	246.7	150.2
10	730	254	258	7.3	246.7	150.2
8	740	256	258	7.3	246.7	149.8
6	739	259	256	7.3	251.7	149.4
4	697	264	252	7.4	256.6	147.5
3	633	277	250	7.4	269.6	143.1
2.25	430	310	234	7.6	302.4	120.6
Finished Water Pump 22-2						
20	730	252	260	7.7	244.3	158.0
10	724	252	258	7.8	244.3	157.5
8	718	254	260	7.8	246.2	157.0
6	706	258	260	7.8	250.2	157.0
4	700	263	258	7.8	255.2	155.9
3	440	279	250	8.0	271.0	132.8
2.75	306	310	238	8.1	301.9	123.8

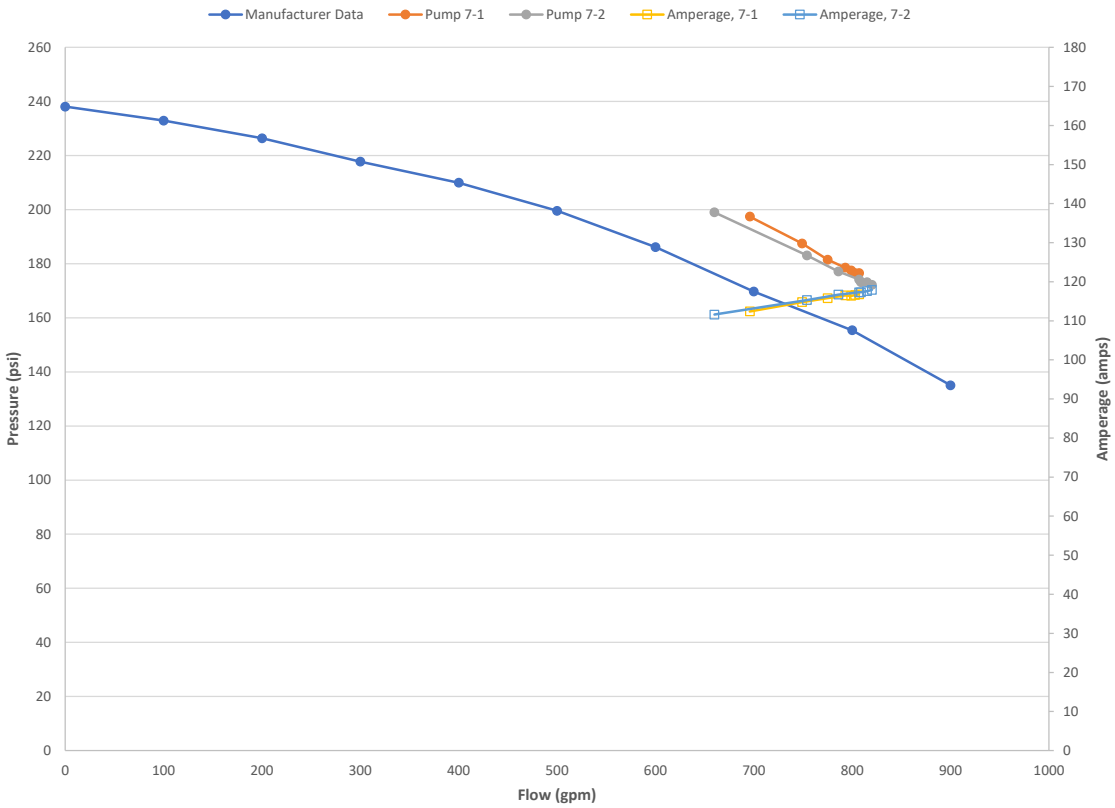

FIGURE 1

Division 7 Finished Water Pump Testing Analysis

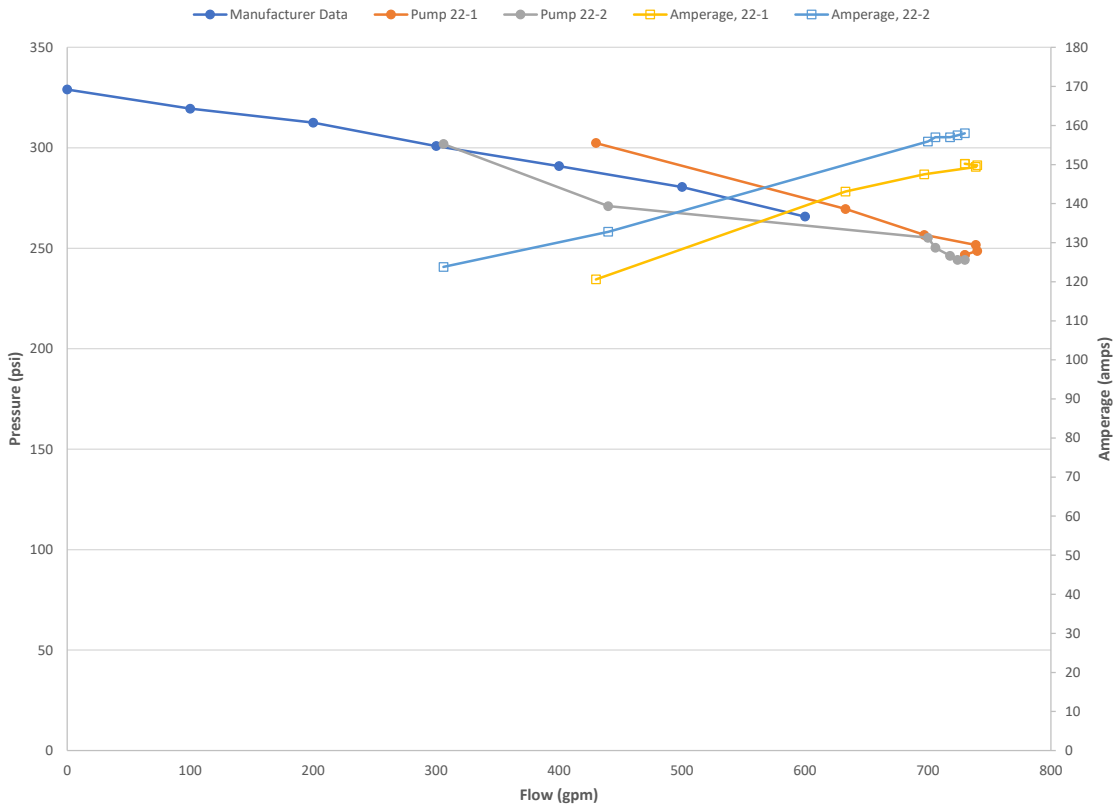

FIGURE 2

Division 22 Finished Water Pump Testing Analysis

The data on Figures 1 and 2 show that the existing finished water pumps are performing at or above the manufacturer's curve. It is unclear why the performance curves for the Division 7 finished water pumps are so far above the manufacturer's performance curve. This could be due to inaccuracies with the pressure gauges or could be related to inherent inaccuracies in recording the flow. During testing – and presumably during normal operation – the flow reading on the display was very jumpy and had a total reading range of approximately 40 to 45 gpm. For the final reading, the values were observed for 30 to 60 seconds and the "average" value was recorded.

The amperage during performance is below the listed maximum load amperage of 119 and 173 amps for Divisions 7 and 22 pumps, respectively.

Given the age of the pumps, if the District continues to utilize these pumps, we recommend that the District complete pump performance testing every 2 to 4 years to

ensure functionality of the equipment and to proactively identify potential points of failure. We also recommend that the District replace the existing pressure gauge assemblies with new calibrated pressure gauges to ensure accurate measurements. Additional recommendations are discussed in subsequent sections of this memorandum.

Clearwell Transfer Pumps

The clearwell transfer pumps and MCC2 are shown as Figures A-4 and A-5 (Exhibit A). Each pump is equipped with a check valve, isolation valve, and pressure gauge assembly. The discharge from each pump connects to a common header, which then proceeds to the chlorine contact basin. Prior to the pipe exiting the building, various filtered water samples are extracted through small fitting connections. Check valves, isolation valves, and piping within the WTP Main Building are 10-inch diameter ductile iron materials. There is no flow meter on the transfer pump discharge line.

The testing team experienced several significant difficulties while trying to complete the performance test. First was the absence of a flow meter on the discharge line from the transfer pumps making direct measurement of the flow during the testing impossible. Although flow cannot be directly measured, it is possible to estimate the flow by dividing the volume of water pumped by the time for each run. The volume of water can be estimated by using information from the existing clearwell level sensor. This sensor measures water height in 0.1-foot increments, and using the known footprint and geometry of the clearwell, the volume of water within the clearwell can be estimated for any given water level. We attempted to measure the flow in this manner, but quickly determined that the water surface measurement was too inconsistent and not sensitive enough for the purposes of testing at small increments of flow.

Secondly, the pressure gauge assemblies on the discharge elbow for each pump were not operational. The isolation valves for these valve assemblies were closed and could not be opened without potentially damaging the threaded fittings. We did investigate other installation locations for these pressure gauge assemblies, but all available locations were downstream of the isolation valve and would not provide useful data.

Due to these issues, the transfer pumps were not tested as part of this analysis. We recommend that the District replace the existing pressure gauge assemblies with new equipment so that performance testing could be attempted in the future. Additional recommendations are discussed in subsequent sections of this memorandum.

New pressure gauge assemblies could be installed by replacing the existing components or by drilling a new threaded tap hole in the existing pump discharge elbow. It is important to note that even with new pressure gauge assemblies, performance testing will

be difficult because the discharge piping does not contain a flow meter. Even though the pumps were installed in 1992, they appear to be functioning well; given their age, they are likely nearing the end of their reliable useful life.

Raw Water Pumps

The raw water pumps and MCC3 are shown as Figures A-6 and A-7 (Exhibit A). Each pump is equipped with a 4 x 10 reducer, 10-inch check valve, and 10-inch isolation valve. Ductile iron discharge piping from each pump connects to a common header and this header proceeds above grade and to the flocculation basin.

Similar to the transfer pumps, the existing pressure gauge assemblies were locked in the closed position. Even if these gauges were available for use, the equipment was installed in 1992 and is likely no longer accurate. Spare gauges could not be found and as such, the raw water pumps were not tested as part of this analysis. The discharge piping for the raw water pumps does contain a flow meter, so pump performance testing could be completed when new gauge assemblies are installed.

Given the age of the pumps, if the District continues to utilize these pumps, we recommend that the District complete pump performance testing every 2 to 4 years to ensure functionality of the equipment and to proactively identify potential points of failure. We also recommend that the District replace the existing pressure gauge assemblies with new calibrated pressure gauges to ensure accurate measurements. Additional recommendations are discussed in subsequent sections of this memorandum.

SUMMARY OF RECOMMENDATIONS AND COST ESTIMATES

As previously mentioned, the pumps tested as part of this work are controlled by individual across-the-line motor starters. These starters are located within separate MCCs located at various locations in the WTP Main Building and the Finished Water Pump Building. As mentioned previously, MCC1 and MCC2 are old and no longer supported by the manufacturer, while MCC3 is in poor condition due to its exposure to chemicals and moisture. The Assessment Report recommended that MCC1, MCC2, and MCC3 be replaced in order to bring the equipment up to current standards, to ensure that suitable replacement parts are available, and to ensure consistent and reliable functionality to the pumps they control. In addition to this, the District has expressed a desire to increase the flexibility of plant operations by utilizing VFD motor starters for these pumps. VFD motor starters will allow the operational staff to vary the flow based on instantaneous demands, to maintain consistent water levels within either the clearwell or chlorine contact basin, and to optimize functionality of the filtration equipment, among other benefits. Modern VFD motor starters are too large to fit within the existing MCCs,

so retrofitting the existing units with new motor starters is not feasible. Furthermore, the existing motors for the raw water pumps, transfer pumps, and finished water pumps are not rated for use with VFDs and as such, would need to be replaced if VFD motor starters were installed.

Because the replacement of MCC1, MCC2, and MCC3 will necessitate the replacement of the associated motor starters and subsequently the pump motors and the District has expressed a desire to both upgrade the equipment to ensure functionality of the pumps and to improve the overall performance capabilities of the treatment plant, we recommend that the District complete the following items for each set of pumps investigated as part of this work.

Finished Water Pumps

Even though pump testing described herein suggests that the finished water pumps are performing very near their original design conditions, we recommend that the District replace the pumps, motors, and motor starters. The MCCs should be replaced and sized to accommodate the desired VFD motor starters and the pumping equipment, including the motor, should be replaced so that it is compatible with the desired VFD controllers. The location of the proposed MCCs should be coordinated with any other modifications to the WTP with regard to exposure to chemicals, water, or other planned improvements. We also recommend that the District replace the discharge pressure gauge assemblies for each pump and procure one spare pressure gauge for each type so that failures can be addressed quickly.

The recommendations listed above are estimated to cost $740,000, which includes materials and installation based on our current understanding of the project scope, contingency (20 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). An itemized cost estimate for these recommendations is provided in Exhibit B.

Clearwell Transfer Pumps

Even though the clearwell transfer pumps appear to be performing adequately, we recommend that the District replace the pumps, motors, and motor starters. The MCCs should be replaced and sized to accommodate the desired VFD motor starters and the pumping equipment, including the motor, should be replaced so that it is compatible with the desired VFD controllers. The location of the proposed MCCs should be coordinated with any other modifications to the WTP with regard to exposure to chemicals, water, or other planned improvements. We also recommend that the District replace the discharge

pressure gauge assemblies for each pump and procure one spare pressure gauge for each type so that failures can be addressed quickly.

The recommendations listed above are estimated to cost $338,000, which includes materials and installation based on our current understanding of the project scope, contingency (20 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). An itemized cost estimate for these recommendations is provided in Exhibit B.

Raw Water Pumps

Even though the raw water pumps appear to be performing adequately, we recommend that the District replace the pumps, motors, and motor starters. The MCCs should be replaced and sized to accommodate the desired VFD motor starters and the pumping equipment, including the motor, should be replaced so that it is compatible with the desired VFD controllers. The location of the proposed MCCs should be coordinated with any other modifications to the WTP with regard to exposure to chemicals, water, or other planned improvements. We also recommend that the District replace the discharge pressure gauge assemblies for each pump and procure one spare pressure gauge for each type so that failures can be addressed quickly.

The recommendations listed above are estimated to cost $239,000, which includes materials and installation based on our current understanding of the project scope, contingency (20 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). An itemized cost estimate for these recommendations is provided in Exhibit B.

EXHIBIT A

PHOTOGRAPHS OF EXISTING PUMPS

FIGURE A-1

Existing Finished Water Pumps
(Division 22 Pumps Are in the Foreground While Division 7 Pumps Are in the Background)

FIGURE A-2

Location Where Motor Amperage Was Measured
(An Ammeter Was Placed Around the Motor Load Conductor and the Value Was Read from the Digital Display)

FIGURE A-3

MCC1
(Shown Is Old and No Longer Supported by the Manufacturer)

FIGURE A-4

Clearwell Transfer Pumps
(The Pumps Move Water from the Below-Grade Clearwell to the Chlorine Contact Basin)

FIGURE A-5

MCC2
(Shows Slight Signs of Corrosion from Exposure to Chemicals and Moisture, Is Old, and Is No Longer Supported by the Manufacturer)

FIGURE A-6

Raw Water Pumps
(The Pumps Move Water from the Lake Whatcom Source to the Flocculation Basin and Are Located Below Grade in the Raw Water Pump Pit)

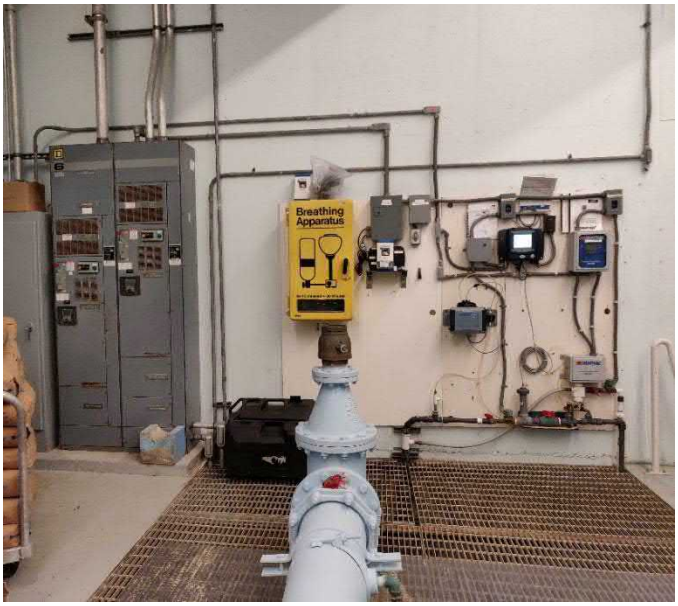

FIGURE A-7

MCC3
(Shows Signs of Corrosion – Interior and Exterior – from Exposure to Chemicals and Moisture)

EXHIBIT B

PUMP REPLACEMENT COST ESTIMATES

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT & ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY PUMP IMPROVEMENTS COST ESTIMATE

Raw Water Pump Modifications
September 23, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Pressure Gauge Assembly	2	EA	$ 600	$ 1,200
2	Spare Pressure Gauge	1	EA	$ 200	$ 200
3	Raw Water Pump VFD	2	EA	$ 15,000	$ 30,000
4	Raw Water Pump/Motor	2	EA	$ 20,000	$ 40,000
5	Pump Removal & Wastehauling	2	EA	$ 5,000	$ 10,000
6	MCC 3 Replacement	1	LS	$ 40,000	$ 40,000
7	Electrical	1	LS	$ 25,000	$ 25,000

Subtotal*	**$ 146,400**
Contingency (20%)	$ 29,300
Subtotal	**$ 175,700**
Washington State Sales Tax (9.0%)**	$ 15,800
Subtotal	**$ 191,500**
Design and Project Administration (25.0%)***	$ 47,900
TOTAL CONSTRUCTION COST	**$ 239,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT & ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY PUMP IMPROVEMENTS COST ESTIMATE

Clearwell Transfer Pump Modifications
September 23, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Pressure Gauge Assembly	2	EA	$ 600	$ 1,200
2	Spare Pressure Gauge	1	EA	$ 200	$ 200
3	Transfer Pump VFD	2	EA	$ 25,000	$ 50,000
4	Transfer Pump/Motor	2	EA	$ 30,000	$ 60,000
5	Pump Removal & Wastehauling	2	EA	$ 5,000	$ 10,000
6	MCC 2 Replacement	1	LS	$ 55,000	$ 55,000
7	Electrical	1	LS	$ 30,000	$ 30,000

Subtotal*	**$ 206,400**
Contingency (20%)	$ 41,300
Subtotal	**$ 247,700**
Washington State Sales Tax (9.0%)**	$ 22,300
Subtotal	**$ 270,000**
Design and Project Administration (25.0%)***	$ 67,500
TOTAL CONSTRUCTION COST	**$ 338,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT & ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY PUMP IMPROVEMENTS COST ESTIMATE

Finished Water Pump Modifications
September 23, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Pressure Gauge Assembly	4	EA	$ 600	$ 2,400
2	Spare Pressure Gauge	2	EA	$ 200	$ 400
3	Division 7 Pump VFD	2	EA	$ 30,000	$ 60,000
4	Division 7 Pump/Motor	2	EA	$ 35,000	$ 70,000
5	Division 22 Pump VFD	2	EA	$ 35,000	$ 70,000
6	Division 22 Pump/Motor	2	EA	$ 50,000	$ 100,000
7	Pump Removal & Wastehauling	4	EA	$ 10,000	$ 40,000
8	MCC 1 Replacement	1	LS	$ 75,000	$ 75,000
9	Electrical	1	LS	$ 35,000	$ 35,000

Subtotal*	**$ 452,800**
Contingency (20%)	$ 90,600
Subtotal	**$ 543,400**
Washington State Sales Tax (9.0%)**	$ 48,900
Subtotal	**$ 592,300**
Design and Project Administration (25.0%)***	$ 148,100
TOTAL CONSTRUCTION COST	**$ 740,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

Gray & Osborne, Inc.
CONSULTING ENGINEERS

GRAY & OSBORNE, INC. 85th ANNIVERSARY 1935 2020 CONSULTING ENGINEERS

TECHNICAL MEMORANDUM 20434-2

TO:	BILL HUNTER, P.E., ASSISTANT GENERAL MANAGER/DISTRICT ENGINEER
FROM:	KEITH STEWART, P.E. RUSSELL PORTER, P.E.
DATE:	SEPTEMBER 23, 2020
SUBJECT:	SUDDEN VALLEY WTP CHLORINE CONTACT BASIN COATING ASSESSMENT LAKE WHATCOM WATER & SEWER DISTRICT, WHATCOM COUNTY, WASHINGTON G&O #20434.00

INTRODUCTION

In 2019, the Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne to perform a condition assessment for their existing Sudden Valley Water Treatment Plant (WTP) as part of a larger effort to analyze the District's water treatment facilities in order to prioritize funds for rehabilitation, modification, and/or replacement projects. The goal of the assessment and subsequent analysis is to identify potential improvements for the existing structures and treatment processes in an attempt to maximize treatment efficiency and extend the operational life of these facilities. The reports and technical memoranda generated as part of this assessment project will be used to develop a strategy for prioritizing modifications to the WTP to ensure it can efficiently and cost effectively provide clean, potable water for the existing and projected service areas.

This report summarizes the assessment of the interior and exterior coating systems on the existing chlorine contact basin.

BACKGROUND AND EXISTING FACILITIES

The District operates three Group A water systems – South Shore (DOH 95910), Eagleridge (DOH 08118), and Agate Heights (DOH 52957) – all of which are in and around the shores of Lake Whatcom, which lies southeast of Bellingham in Whatcom County, Washington. The District serves approximately 3,900 residential and commercial water system connections with a residential population of approximately 10,000 people.

1130 Rainier Avenue S., Suite 300 Seattle, Washington 98144 (206) 284-0860 Fax (206) 283-3206

The South Shore system is the largest of the three systems and is supplied wholly by water treated at its Sudden Valley Water Treatment Plant. In addition to the WTP, the District also owns and maintains surface water source, storage, and distribution system facilities. The distribution system includes multiple pressure zones, four booster stations, and approximately 2.8 million gallons (MG) of storage in five reservoirs. The District also maintains a secondary intertie with the City of Bellingham Water System (DOH 50600) that is used only during emergency situations.

The existing WTP is a rapid-rate, direct filtration plant with a rated capacity of 2.0 million gallons per day (MGD) but currently operates at approximately 1.0 MGD (700 gallons per minute (gpm)). The WTP is housed in a partially below-grade concrete building located on Morning Beach Drive approximately 1 mile northeast of the intersection of Lake Whatcom Boulevard and Marigold Drive. The facility was constructed in 1972 and has undergone several minor improvements since that time, but was most recently upgraded in 1992. The WTP provides coagulation, flocculation, filtration, disinfection, and chlorine contact time before treated water is pumped to the distribution system and storage reservoirs.

The WTP utilizes a chlorine contact basin (CCB) to provide chlorine contact time for filtered water prior to introduction to the distribution system. Technical information for the CCB is provided in Table 1. Figure 1 shows a plan view of the CCB while Figure 2 shows a section view of the CCB.

TABLE 1

WTP CCB Summary

Parameter	Value
Year Constructed	1994
Type	Circular, Welded Steel
Diameter (ft)	40
Base Elevation (ft)	336.0
Overflow Elevation (ft)	360.0
Volume (gal)	225,000
Gallons per Foot	9,400
Inlet	10-inch Perforated Riser
Outlet	10-inch Perforated Riser
Instrumentation	Pressure Switch (High Alarm)

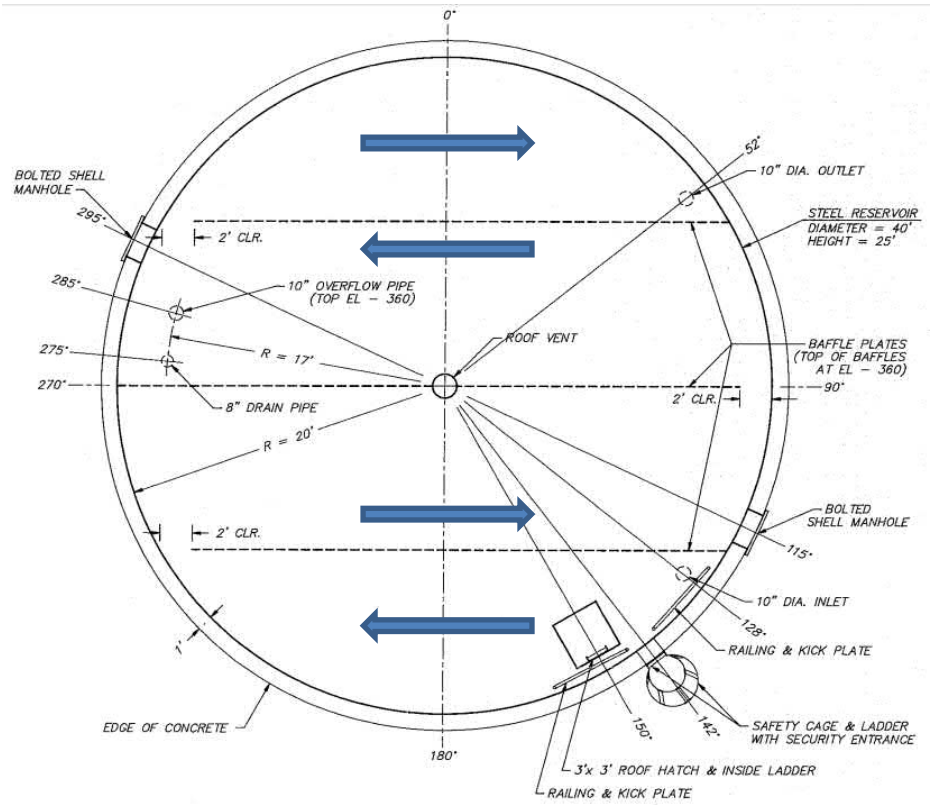

FIGURE 1

WTP CCB Plan View

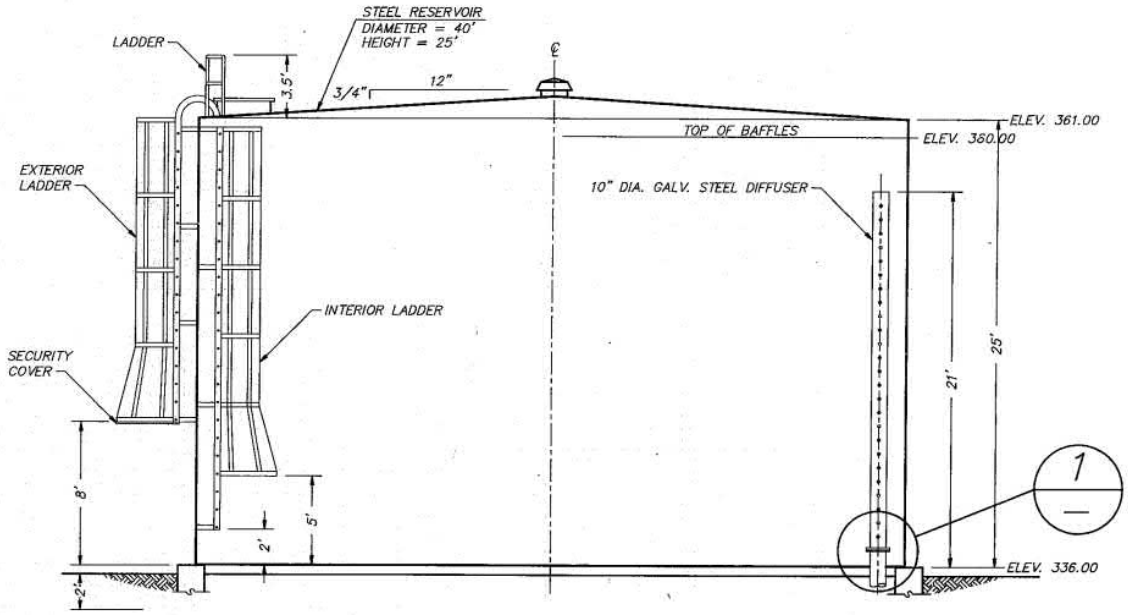

FIGURE 2

WTP CCB Section View

Water enters the CCB via a diffuser riser at one end and flows in a serpentine fashion between three steel baffles to the outlet diffuser. The inlet diffuser consists of a 10-inch diameter PVC pipe with 25 2-inch diameter holes drilled at approximately 9.25 inches on center. The outlet diffuser riser consists of a 10-inch diameter PVC pipe with 50 2-inch diameter holes drilled at approximately 9.25 inches on center. These risers act to promote consistent flow throughout the full depth of the water column from the inlet to the outlet.

The CCB provides chlorine contact time (CT) for filtered water, which is a function of the chlorine concentration of water entering the tank, the hydraulic residence time within the tank, and the baffling efficiency of the tank. As directed by DOH, the District must maintain a minimum of 16.5 feet of water within the tank in order to meet their minimum CT requirement. As such, the CCB represents a critical component of the overall treatment system and must remain functional anytime the WTP is in operation.

CCB INVESTIGATION

Gray & Osborne utilized a subcontractor, Evergreen Coating Engineers, LLC (ECE), to perform the formal investigation. The investigation was conducted by

Lance Stevens P.E., NACE CIP Level 3 on August 19, 2020, and included the following components:

- Visual inspection of the interior and exterior coatings.
- Measurement of coating thickness.
- Measurement of coating adhesion from six testing dollies.
- Collection of coating samples for RCRA 8 metal analysis.
- General assessment of safety equipment, site/tank access, and available appurtenances.

On August 18, representatives from Gray & Osborne traveled to the WTP and affixed six coating adhesion test dollies to the tank surface. Two dollies were placed on the roof of the tank, and four dollies were affixed to the sidewall. Figure 3 shows some of the testing dollies in place.

FIGURE 3

Coating Adhesion Testing Dollies

On August 19, ECE travelled to the WTP to complete the investigation. ECE provided a complete assessment report for their investigation and this report is provided in Exhibit A. A summary of the report's findings and recommendations is provided in the section below.

SUMMARY OF RECOMMENDATIONS AND COST ESTIMATES

The report provided by ECE had the following observations:

- Interior Coating System:
    - Likely consists of two or three coats of epoxy and is in moderate condition above the waterline and in good condition below the waterline.
    - Interior exhibits staining and rust corrosion, most likely from not having seal welds and not having been stripe-coated.
    - There is likely a section of peeling paint near the center of the tank. This section was difficult to see due to the location of the hatch.
    - Coating samples collected from the tank showed no significant concentrations of lead or other RCRA 8 metals (Exhibit B).
    - The interior of the tank has not been seal welded.
    - Previous corrosion/coating investigations completed by H_2O Solutions, LLC (2018) noted local areas of coating failure and light to moderate corrosion both on the interior and exterior of the tank. This report is provided in Exhibit D.
- Exterior Coating System:
    - Overall, the coating system on the sidewalls is in good condition, while the coating system on the roof is in moderate condition.
    - The roof exhibits algae and lichen growth, which will accelerate the deterioration of the coating system.
    - Existing coating patches have helped extend the service life, but show evidence of failure below the patch.
- Adhesion testing was performed and the results were favorable with a minimum pull strength of 1,089 pounds per square inch (psi) for the six samples tested.
- The tank is equipped with safety features; however, the tank could easily be accessed and/or vandalized in its current condition.
- The roof vent is in poor condition.
- Access to all portions of the tank for inspection is not provided via the single entry hatch.

To address the observations listed above, the report provided by ECE listed the following recommendations, which assume that the District will maintain use of the existing tank:

- Remove the existing interior coating system and replace it with new fluoropolymer coating within 5 years. The new interior coating system should include zinc primer and plural component epoxy topcoat. Sharp edges within the tank interior surface should be stripe coated as part of this coating process. The CCB will be unavailable for use during this process, which is anticipated to require 4 to 6 weeks to fully complete.

- Remove the existing exterior coating system and replace it with a new coating system within 5 years. The new coating system should include zinc primer, polyurethane intermediate coat, and fluoropolymer topcoat after surface preparation. The tank can be coated while in use, but it is desirable to prepare and coat the tank when not in use if feasible. Preparation and coating of the exterior is anticipated to take 2 to 4 weeks if completed with the interior coating work, and 4 to 6 weeks if completed separate from the interior coating work. Containment of the blast material and removed coating is recommended.

- The interior of the tank should receive seal welding to reduce potential for additional corrosion. Seal welding should extend the lifespan of the existing tank structure as well as any coating systems that are applied.

- Replace the existing roof vent, which shows signs of corrosion and damage.

- Install one additional access hatch that will allow for easier and more thorough tank inspection and maintenance.

- Remove both the interior and exterior ladder cages. The exterior ladder should be equipped with a ladder guard set at least 4 feet above grade to provide a protected height of at least 12 feet.

- Provide a cover for the existing access hatch padlock and replace the existing handhole screws with tamperproof devices.

The recommendations listed in the report are estimated to cost $680,000 which includes materials, labor, contingency (20 percent), Washington State sales tax (9.0 percent), and design and project administration (25 percent). If the optional items including the seal

welding, additional roof hatch, and new roof vent/tie-offs are removed from the project, the estimated project cost decreases to $500,000. It should be noted that these cost estimates do not include the costs for temporary CT tankage during rehabilitation. The WTP cannot operate in compliance with DOH requirements without providing CT and as such, additional CT facilities are required if the existing tank is removed from service for cleaning, preparation, and coating. A permanent CT tank, a temporary CT tank, or temporary CT piping are all feasible solutions to provide CT during tank rehabilitation.

For comparison, a new 250,000-gallon, 40-foot diameter, 25-foot high welded steel tank with interior baffles and safety appurtenances is estimated to cost between $1.0 million and $1.25 million. This would include new piping and fittings to connect the new tank to the existing finished water pump building but does not include costs such as land acquisition or permitting.

Cost estimates for all three of these alternatives are included in Exhibit C.

EXHIBIT A

EVERGREEN COATING ENGINEERS COATING ASSESSMENT REPORT

LAKE WHATCOM WATER & SEWER DISTRICT

Sudden Valley Water Treatment Plant

Chlorine Contact Basin Tank Evaluation

September 2020 - Draft Report – Rev 1

Evergreen Coating Engineers, LLC

Seattle, WA

EXECUTIVE SUMMARY

Gray & Osborne (G&O) contacted Evergreen Coating Engineers (ECE) to complete an evaluation of the Sudden Valley Chlorine Contact Basin Tank (CCB Tank or Tank) for Lake Whatcom Water & Sewer District (District) and provide recommendations for recoating and improvements. The evaluation consisted of the interior and exterior coating systems as well as the tank access features and site. The evaluation was performed by Lance Stevens, P.E., NACE CIP Level 3 of Evergreen Coating Engineers, LLC. The results of that evaluation are contained in this report.

The evaluation found that the coating system on the exterior of the tank is in relatively good condition. The coatings are still protecting the tank except in a few areas on the roof where corrosion has begun. Patches in the coating system on the side shell of the tank are beginning to fail as well. The interior coating system is of more significant concern as it is failing around the edges of the roof plates and structural steel members. The cathodic protection system appears to be working well beneath the water line where it is designed to work. It should be noted that due to the baffles within the tank and only having one access hatch, we could not inspect approximately 2/3 of the interior coating system. It is our opinion that the coatings will protect the tank for another five years but the tank could start to have more problematic metal loss after that.

In addition to the coating system replacement, there are several improvements which could be made to the tank to facilitate access and use. Seal welding, as described within the report, could help to extend the life of the tank as well as extend the length of each coating life cycle. The tank roof vent should be replaced and another access hatch added to the opposite side of the roof to allow for better inspection of the tank.

The improvements should be performed within the next 3 to 5 years and the estimated total project cost of the recommended project in 2020 is $519,000 including a 20 percent contingency and 8.5% sales tax.

INTRODUCTION

BACKGROUND

Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne (G&O) who teamed with Evergreen Coating Engineers (ECE) to evaluate the interior and exterior coating systems as well as the tank access and site features on the District's CCB Tank (Tank). The District's goal was to determine the condition of the tank and the options that are available to maintain the tank in the future. The Tank did not have a nameplate on the exterior so the actual dimensions and size are unknown from the field, however, the District provided data that the Tank is 24 feet in height to the overflow (25 feet overall) and 40 feet in diameter with a usable volume of 225,000 gallons. The Tank was constructed in 1994.

The field data collection was performed by Lance Stevens, P.E. of Evergreen Coating Engineers, LLC (ECE) on August 19, 2020 while the dollies for the adhesion testing were set by Keith Stewart, P.E. of Gray & Osborne, Inc. (G&O) on August 18, 2020. The scope of work was developed to provide the District with an evaluation of the existing coating systems on the interior and exterior of the tank along with a general evaluation of the tank access features and site. The interior was inspected by leaning into the roof hatch. Although it aids in chlorine contact time within the tank, the interior baffle prevented access or the ability to view approximately 2/3 of the tank that is opposite of the existing roof hatch. The exterior was

inspected by climbing the tank and by walking around the exterior. No lifts were provided for detailed inspection of the upper shell wall.

It is unknown if the tank has been recoated at some point since construction. Staff that was onsite at the time had not recalled the tank being taken out of service for recoating. Given the appearance of the coating system and that the tank serves as the chlorine contact basin for system CT requirements, it is likely that this is the original coating system.

The safety features of the tank were not evaluated as the District believes that all of the features are in compliance with current codes. A general evaluation of the site and access features is included within this report. Recommendations regarding railings and the ladders on the tank do not imply that an analysis was performed for their compliance with safety codes. The recommendations are based only upon ease of use and access of the facility by District personnel. If any of the recommended improvements are included in future design work, the improvements should be evaluated at that time for compliance with current safety codes.

The coating systems were graded utilizing The Society for Protective Coatings (SSPC)-VIS 2 Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces. In general, the values range from 1-10 with 10 being practically no corrosion evident and 1 being greater than 50 percent corroded. The areas are also categorized by the type of corrosion observed with an S = Spot Rusting, G = General Rusting, P = Pinpoint Rusting, O = Other Rusting which is a combination of types of rusting. As an example, a rust grade of 5-S would represent approximately 1-3 percent spot rusting on a surface.

INTERIOR COATING SYSTEM

The interior coating system likely consists of two or three coats of epoxy, a common coating system in 1994. The coatings were assessed by taking photos and visually observing what could be seen through the roof hatch. Since the tank is utilized for chlorine contact time and has interior baffles, the ability to assess the coatings within all of the tank was hindered and therefore issues could exist which are not included within this report. (See Figure 1).

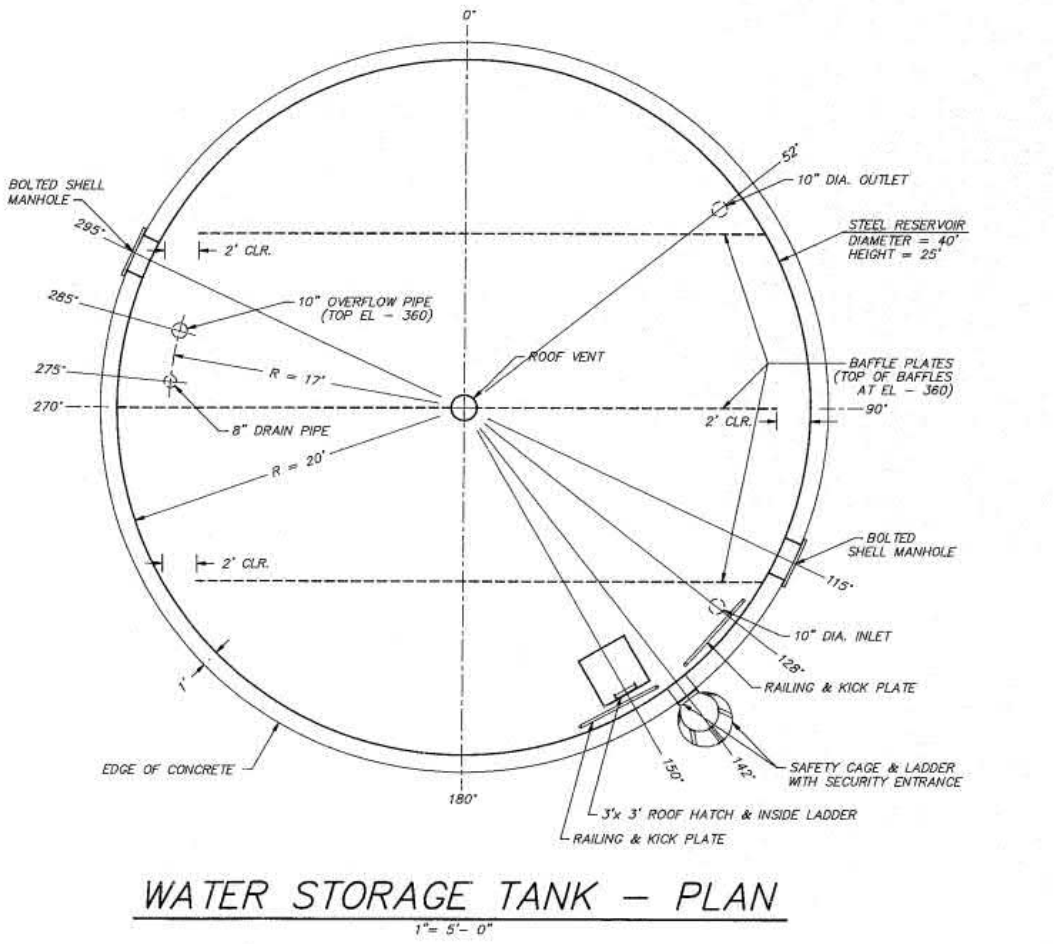

FIGURE 1: CCB Tank Plan

Overall, the interior coating system appeared to be in moderate condition. Beneath the waterline, the coatings appeared to be in good condition. Given the age of the tank, this is most likely due to the cathodic protection system that was observed on the roof of the tank. There was significant rust staining within the interior of the tank mostly from within the lap joints of the roof plates or on edges of angle supports, rafters, and plates (Photos 29-35). The lap joints are where the roof plates overlap each other and the painters can no longer prepare or paint the area within the lap so the area within corrodes and streaks out onto the coated steel. Corrosion within the lap joints can only be prevented by seal welding which is discussed later in this report. Corrosion on the edges of plates and angles can be significantly reduced during recoating by stripe coating these areas. Stripe coating is the application of an additional coat of paint in these areas to build thickness and to prevent the coatings from pulling away from the sharp edges. The corrosion in the overhead area is not designed to be protected by the cathodic protection system.

It was very difficult to see but something which most likely was paint, was peeling from the roof about 10 feet west of the hatch (Photo 35). The observable walls and center portions of the roof plates of the tank typically corresponded to an SSPC-VIS 2 Rust Grade 9- or 10-G representing less than 0.03 percent of the

surface rusted. However, the edges of the roof plates, angle supports, and rafters typically corresponded to an SSPC-VIS 2 Rust Grade 4- to 5-G representing approximately 3 to 5 percent rusting.

A coating sample was taken of the interior coating system for Total Metals testing. The results of that test are included at the end of this report. The test shows that…

EXTERIOR COATING SYSTEM

The exterior coating system is likely the original coating system and may consist of a variety of different styles of coatings as that era was a transition period in coating systems. Overall, the coating system has protected the tank well for 26 years in a very damp environment. There are multiple places around the exterior of the tank where coatings have been patched however these are failing underneath the patch as evidenced by the rust staining coming from them (Photo 9). There was a patch of mildew remaining on the side shell on the west side of the tank that hadn't been cleaned the last time that the tank was cleaned (Photo 3). The side shell appears to be in moderate condition with chalking and loss of gloss evident in the coating system. Overall, the exterior side shell appears to be an SSPC-VIS 2 Rust Grade 7-S.

The coatings on the roof of the tank appear to be in moderate condition. The roof had a layer of algae on it which made it very slippery (Photos 21 and 25). While most of the coatings are intact, the top coat could be seen delaminating from the intermediate coat in some areas (Photos 27 and 28). The roof is also suffering from corrosion in areas around the roof hatch and vent. Overall, the roof area around the ladder appears to be an SSPC-VIS 2 Rust Grade 3-S while the rest of the roof is a 10-S.

A coating sample was taken of the exterior coating system for Total Metals testing. The results of that test are included at the end of this report. The test shows that…

COATING ADHESION TESTING

There are two options for recoating a tank. Either all of the coatings can be removed to bare steel and a new coating system applied or the existing coatings can be top coated where they are cleaned and a new system applied over the old system. Not removing the existing system lowers project cost by eliminating the containment that must be constructed if the existing coatings are blasted off. From experience, the cost to blast clean a structure versus pressure wash and hand clean every rusted spot are about equal. It must be understood that applying a new system over an existing system, or top coating, does carry risk to the owner. Any issue that occurs with the existing coating system after top coating will not be warranted by the Contractor as that is an existing condition outside of his control. The issues can be delamination from stresses that are imparted to the existing system by the new system or sometimes from the solvents used in the new system which can attack the old coating system causing failures. There are two ways to help lessen these risks, but some risk does remain. The first way is adhesion testing and the second is to paint a 10 foot by 10 foot patch of the new coating system on the existing system and give it approximately six months to field test the effects.

Adhesion testing is utilized to determine how tight the existing coating system is held to itself and to the structure. The purpose of the testing is to determine whether the existing coating system can withstand the weight of the new coatings as well as the stresses that will be imparted as the new coatings dry. The test is conducted by utilizing an epoxy adhesive to glue an aluminum dolly to the coating. Once the epoxy is cured, either a manual or automatic adhesion tester is attached to the dolly and pressure is applied until

the dolly is pulled from the surface or 3,500 psi is reached. If the coatings fail, they will fail in some combination of cohesive failure which is within the same layer of paint, or adhesive failure which is failure between layers of paint or between the paint and the substrate. The glue can also fail adhesively or cohesively but in either event it is noted as a percentage of glue failure. For this test, a Defelsko PosiTest AT-A Automatic S/N 17275 was utilized which has a hydraulic pump that automatically applies a smooth and continuous pull-off pressure which will provide the best result.

Six dollies were set on the tank and their location is shown in Figure 1 above and the pdf results are attached at the end of this report. The results are provided in Table 1: Adhesion Test Results below. The test layers are:

TABLE 1: Adhesion Test Results

A = Substrate; B= Primer coat; C= Intermediate coat; D= Top Coat; Y= Adhesive; Z= Dolly

Dolly	Max: 3,500	Failure %			Location
No.	PSI	Adhesion %	Cohesive %	Glue %	Of Failure
1	1,215		20		D
				80	Y
2	1,089		15		D
				85	Y
3	1,496			100	Y
4	1,622		5		D
				95	Y
5 (Roof)	2,298		50		D
				50	Y
6 (Roof)	1,273		95		C
			5		D

Overall the results were very good. Typically, results over 1,000 psi are acceptable and over 1,400 psi are preferred. It should be noted that these are values that Evergreen Coating Engineers recommends and industry values, depending upon the source, can be as low as 600-700 psi. We believe that the risk that the Owner carries in opting to top coat versus the savings involved should meet a higher standard than the industry minimums.

While the adhesion results are good, one concerning issue is the delamination of the top coat from the intermediate coat on the roof (Photos 27 and 28). From the dolly pull, it may be delaminating cohesively from within itself. It could also be due standing water or to biological attack from what appear to be lichens (Photo 26) that are growing on the roof. Mildew, lichens, and moss grow roots into the coatings which can physically break the coatings apart.

SITE AND ACCESS

The tank site is adjacent to a heavily used parking space that provides resident access to recreation areas and is open to access by the public The site is heavily treed and is very damp but is on a hillside and appears to be well drained. The height of the ring wall of the tank varies in relation to the ground

elevation. In some places it is at or below grade and others it sits above grade. On the northeast side of the tank at the sample lines, the ringwall appears to be above the ground (Photo 8). The sill grout is in good condition. The tank is anchored to the ringwall by 13 anchor chairs. Two 36-inch manways are located on the north and south sides of the tank. A fence has been built very close to the tank in order to fence off what is assumed to be a fuel tank for the plant generator.

The roof of the tank is accessed via a ladder system that starts 8 feet from the ground and has a ladder cage and Saf-T-Climb for fall protection. The Saf-T-Climb rail has been painted which may interfere with operation of the device (Photo 22). The ladder cage has a cage guard that swings down vertically. These can be problematic as they can swing down quickly when a lock is removed and hit a worker utilizing a ladder to access the guard. These can be replaced with a horizontal swinging guard. A run of three 1-inch conduit run up the right side of the ladder cage.

Once on the roof, the immediate area is protected by railings. Within this area is the rooftop access hatch. A cable is attached to an anchor point near the roof vent that a worker can attach to a D Ring on his climbing harness. It should also be noted that the #24 mesh screen that protects the vent from insects appears to have a significant amount of corrosion on it from the interior and should be cleaned. While this wouldn't harm the tank in a vacuum situation, in a pressure situation where the pumps fail to shut off, the vent could be significantly blocked. A cathodic protection junction box is also on the roof of the tank.

ANALYSIS

Interior

The interior and exterior coating systems need to be addressed within the next five years depending upon the District's tolerance for steel loss to corrosion on the interior of the tank. One issue is that the majority of coatings in the interior of the tank could not be observed during this assessment so the condition of those areas at this time is unknown. In 2017, the District contracted with H2O Solutions to provide an in-situ inspection of the tank and the degree of corrosion. Additional information on the conditions of the interior components is available in that report.

It is highly recommended that the tank be seal welded as this will prevent a lot of corrosion in the future. If the corrosion damage goes too far, edges of plates and rafters which are typically welded in the seal welding process could get too thin to weld and require additional work or materials to weld. Seal welding is discussed later in this report. The full interior coating system should be removed and replaced. One issue that will likely increase costs on the interior of the tank are the baffles. While these are extra steel to coat, they will likely hinder the work being performed. The two foot gaps between the baffles and the shell wall should be enough room to move most workers and materials around but they will slow the work. A door sheet could be cut into the side of the tank to help improve the ability to complete the recoating or other work inside of the tank. A door sheet is an opening that the contractor cuts into the side of the tank and then welds it back into place once the job is complete. Often the option to cut a door sheet is left up to the contractor to determine which they believe is more cost efficient versus working through the manways. The baffles are also at the same height as the overflow pipe which could allow water to short circuit the baffles once it gets high enough to enter the overflow.

Although the interior ladder that was present during this assessment was found to be in good condition above the water surface, the District removed the ladder and associated safety cage on August 31, 2020.

The ladder showed significant signs of corrosion below the water surface and was thought to be taxing the existing passive cathodic anodes that serve to inhibit/slow the rate of corrosion of the tank. The ladder and safety cage was removed by H2O Solutions and additional information on this work is provided in their report. It should be noted that while this action helps improve protection from corrosion, it does leave the District without stable and convenient access to the tank interior.

The interior can only be observed from the one access hatch and as noted above, provides only a limited view of the interior of the tank. The addition of another access hatch on the opposite side of the tank would make inspecting the interior much easier. This could be added for minimal cost as a ladder would not be necessary to include with the hatch.

Exterior

The exterior of the tank is largely protected by the existing coating system but it is beginning to fail. The coating repair patches on the side of the tank are corroding underneath the patches as evidenced by the rust staining leaking from them. The coatings showed strong adhesion as demonstrated in the adhesion tests, however there are some issues with the coatings as they are delaminating in places on the roof. The rooftop areas could likely be pressure washed and prepared via hand tools to remove the loose coatings but some risk could remain that there is a problem that will continue to spread after topcoating if that option was selected. One other problem that was noted while onsite is the moisture in that area. The inspection was conducted in late August which is typically the driest time of the year and the tank was still very wet at noon. This type of moisture would require the use of containment and dehumidification equipment in order to paint the tank and cure the coatings properly. If containment is used, there is no point in top coating the existing system as the costs at that point to remove and replace the coating system would be approximately the same as top coating. The heavy algal growth on the roof and on the sides of the tank show that this moisture is an ongoing issue.

The roof also has some significantly corroded areas in and around the access hatch area and roof vent. The vent is an older styled vent and is showing significant corrosion on the exterior. The interior of the vent is likely much more corroded than the exterior due to the steam that will leave the vent during the summertime. At a minimum the vent should be removed so that the riser can be inspected but should probably be replaced with a vent utilizing pressure and vacuum relief pallets.

Fall Protection

Although an evaluation of fall protection on this reservoir was not part of the scope of work, there is one option that the District may want to consider. Fall protection from the tank roof appears to be provided via an existing structural tie-off anchor. Another option would be for the District to add a circumferential guard rail around the perimeter of the tank and enclose the entire top of the tank for approximately $11,000. This eliminates the need for the static and safety lines and allow multiple personnel on the rooftop at any given time.

Although the District does have a structural tie-off point attached to the tank roof (Photo 18), utilization of this anchor will result in workers' safety cables dragging across the roof surface which will damage the coating system over time. Another option is to install an elevated anchor point approximately 12-inches above the surface of the roof. This style of anchor minimizes contact between the roof surface and the safety lines, thus reducing dragging, scratching, and damage to the coating system.

Security

No evidence of vandalism or security issues were noted onsite. If security is a concern, the interior of this tank could be accessed very easily. Although the ladder is approximately eight feet off of the ground, the ladder guard would likely be ineffective in deterring an intruder. The outside of the cage could be ascended to the roof of the tank (Photo 7). Once on the rooftop, the camera is in an obvious and easily accessible area and could be bagged or dismantled (Photo 16), the padlock on the access hatch is easily accessible to be cut and removed (Photo 23), and the handhole covers could be removed to insert a contaminant into the tank (Photo 17).

While a determined intruder is very difficult to stop, there are multiple ways to improve the security of the tank. A ladder cage is not required since the tank has a Saf-T-Climb fall protection device so that could be eliminated and replaced with an eight foot high full ladder guard set four feet off of the ground to give a protected height of twelve feet. Intrusion switches could be added to the access hatch and included in the SCADA system which likely exists at the treatment plant. This way even if the camera is disabled, District personnel would know if the tank had been breached. The handholes should have the phillips head screws removed and should utilize a security bolt. The padlock could be protected by the addition of a small piece of plate steel over the top of the padlock to prevent accessing it with bolt cutters or a reciprocating saw. Finally, the District could consider the installation of a seismic valve. While these valves are typically used to protect the contents of the tank from being lost after a seismic event, they can also be utilized to isolate the tank until District personnel can verify what has occurred in the event that an intruder sets off an alarm.

Rehabilitation Schedule

In discussions with staff while onsite, it was confirmed that this tank is critical to the operation of the treatment plant and for providing chlorine CT for the system. This tank will be out of service for a minimum of 4-6 weeks in order to recoat the interior and place back into service if the contractor used plural component coatings with a 48 hour cure time. The exterior of the tank will need to be contained in order to paint it. Although precautions would need to be taken, the exterior could be painted with the tank full of water and in operation.

There are two ways to proceed with taking the tank out of service. First, a temporary water tank could be purchased and utilized while the tank is down. Given that this tank provides CT storage, the temporary tank would likely need to include baffles. The chlorine dose could be increased but that could result in complaints and not likely reduce the size of the tank considerably. The second option is to build a new tank. The new tank could range significantly in cost from a Mt. Baker Silo style tank to another welded steel tank. The addition of a second tank would allow for more operational flexibility in the future.

One final issue that was noted is that the bottom of ring wall foundation is exposed next to the sample lines. The District should continue to monitor this area and take action if additional exposure, erosion, or undercutting is observed.

Seal Welding

If the tank is not seal welded, much of the staining that is visible within the roof of the tank will reappear within a couple of years of the interior recoating. This staining is due to ongoing corrosion occurring between the overlaps of the roof plates and the space between the roof plates and rafters. These areas are usually very tight and cannot be cleaned and painted. Eventually the roof plates and rafters will suffer

significant corrosion, although the amount of time this takes varies greatly from tank to tank. The only way to prevent this ongoing corrosion is by seal welding the interior of the tank to eliminate these gaps.

As can be seen in Photo 36 from another reservoir, the flange on a rafter can be severely corroded. Photo 38 shows the seal welded tank that the rafter in Photo 37 was taken from. You can see that the corrosion in the ¼-inch thick roof plate above that rafter was significant with degradation of up to a third of the thickness of that plate having occurred. With the seal welding complete, you can see the rafter to roof plate gap has been welded shut. Photo 38 shows the roof plate lap welded shut. The coatings can now be applied as a complete film across those areas and the amount of corrosion that the tank will undergo from this point forward has been significantly reduced, thereby extending the lifespan of the tank. Seal welding the tank during the next recoating project will extend the service life of the structure and will also extend the maximum life that can be obtained from a coating system. The corrosion seen on the edges of the roof plates and the vast majority of the staining seen in the roof of the tank are all issues that are eliminated by seal welding and stripe coating and all things being equal, will typically extend the life of a recoating project by five or more years. The cost to seal weld the interior of Tank 1 is approximately $75,000.

RECOMMENDATIONS

Both the interior and exterior coatings should be removed and replaced. If the work is done after January of 2023, the interior coating system will most likely be a plural component epoxy coating as NSF 61/600 regulations are changing and eliminating most of the coatings that are NSF 61 compliant today. We still recommend the application of a zinc primer to hold the blast before application of a plural component epoxy. This will allow the tank to be fully blasted and cleaned prior to the application of the epoxy and result in a much cleaner and better end product.

On the exterior, we recommend removing and replacing the existing coating system with a zinc primer, polyurethane intermediate coat, and a fluoropolymer top coat. The fluoropolymers are a newer type of coating but have been in widespread use for the last 15 years nationwide. This tank is readily visible by the public and the fluoropolymer coatings will look better at 15 years than a traditional polyurethane coating will look in 4-5 years. The fluoropolymers are also proving that they will last 20+ years and they may last up to 30 years. The fluoropolymer system on this tank would be about $8,500 more than the typical polyurethane system. We also recommend including the containment system so that the environmental conditions can be controlled.

We highly recommend seal welding as it will extend the lifespan of the tank as well as each coating system applied to the tank for the rest of its service life.

We recommend replacing the roof vent, adding an additional access hatch, and installing a padlock guard on the existing hatch. The remaining items mentioned throughout the report would provide additional benefit and could be installed if desired by the District.

COSTS

The Estimated Total Construction Cost for this project is $519,000. This value includes the cost to:

- Remove the existing interior and exterior coatings and recoat the interior and exterior;
- Seal weld the interior:

- Replace the roof vent;
- Add the access hatch and security plate over the existing padlock;

The following are options that should be considered but are not specifically included:

- Circumferential railing could be added for approximately $11,000.
- The exterior ladder guard could be added for approximately $7,500.

Photo 1: East side of tank.

Photo 2: North side of tank with Dolly #4 in the photo.

Photo 3: North side of the tank.

Photo 4: South side of tank with vertical swinging ladder guard.

Photo 5: Overflow with air gap.

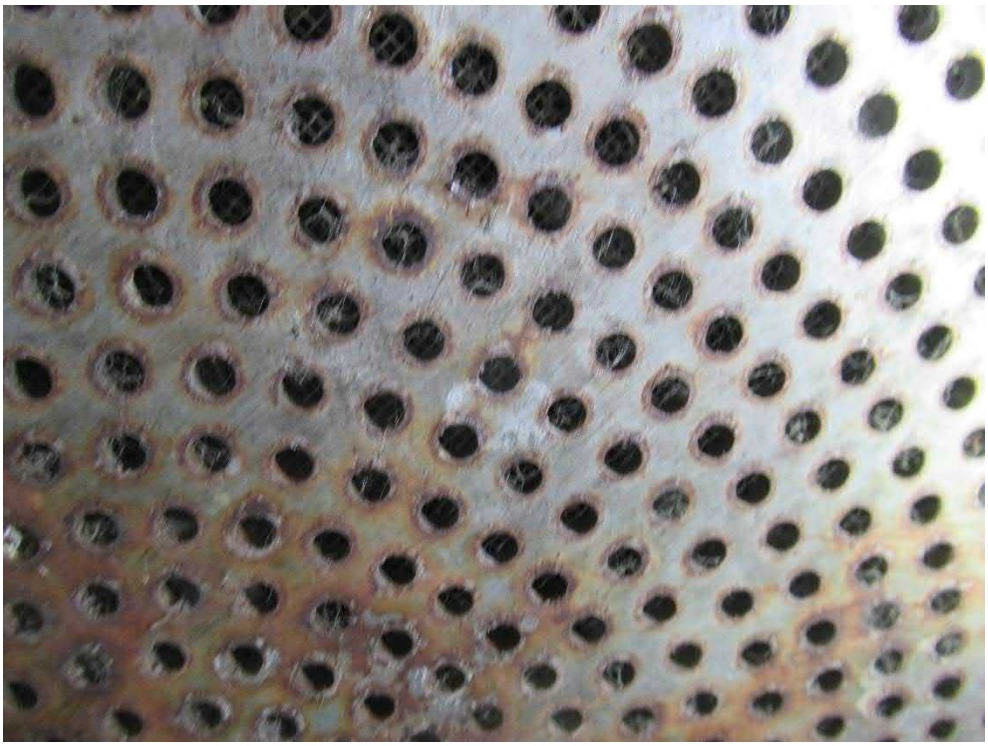

Photo 6: #24 mesh screen protecting the overflow pipe.

Photo 7: Southeast side of the tank with level gauge.

Photo 8: Exposed ring wall on east side by sample lines.

Photo 9: Rust stains from underneath coating patches.

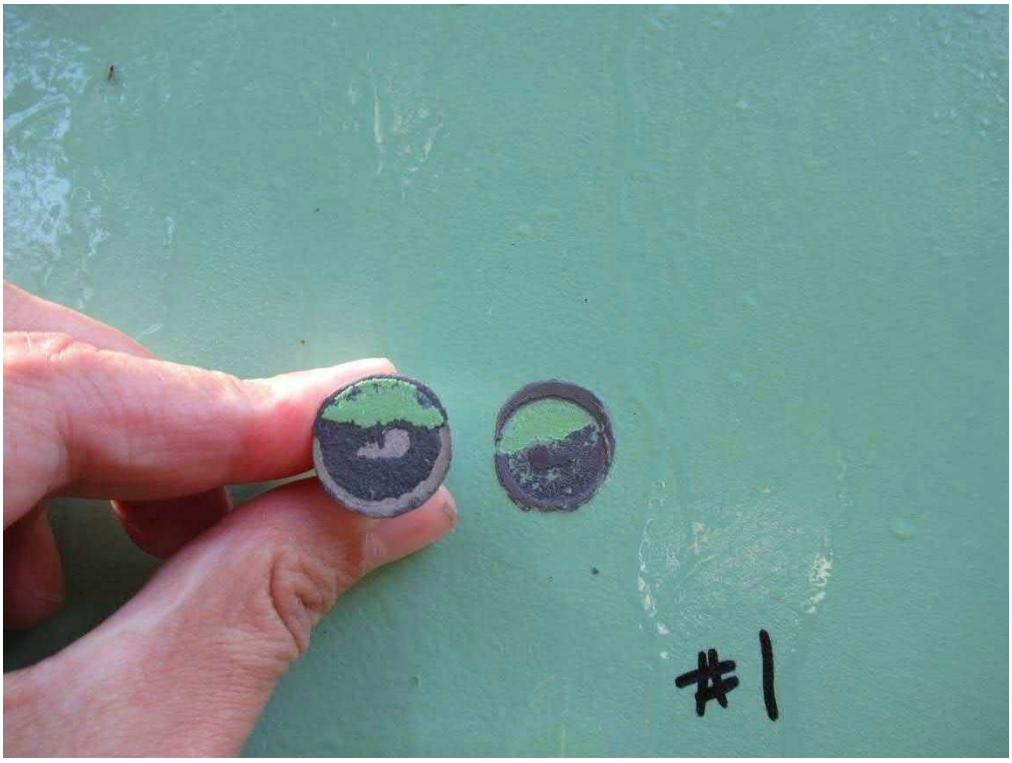

Photo 10: Dolly #1 on the side shell.

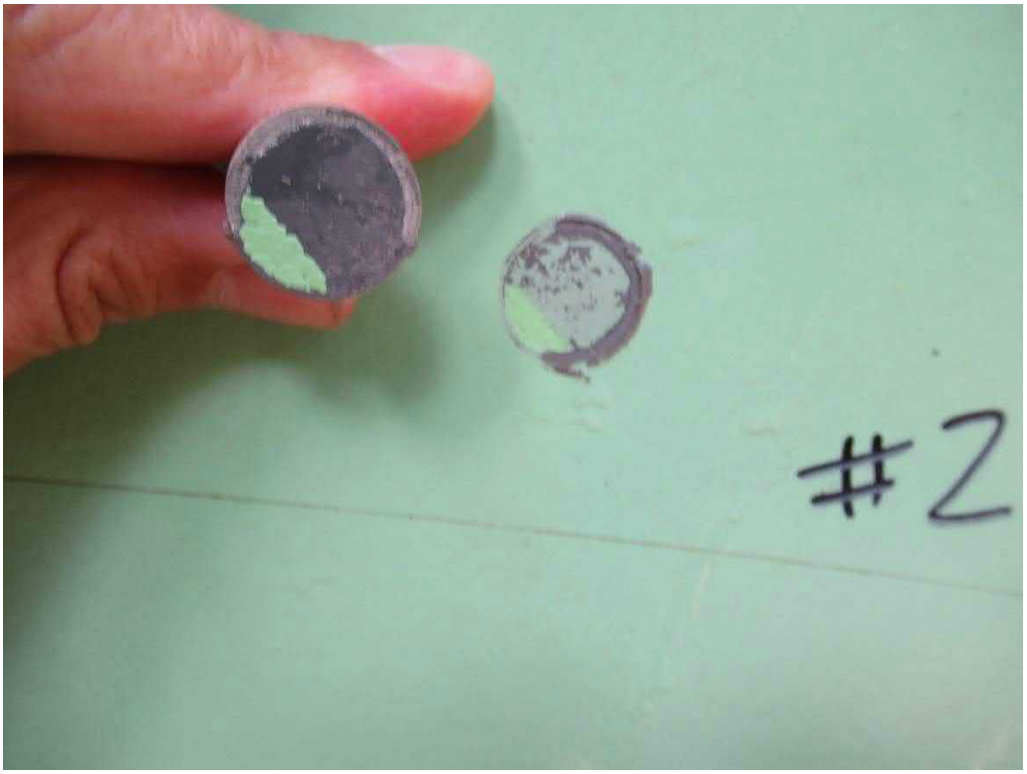

Photo 11: Dolly #2 on the side shell.

Photo 12: Dolly #3 on the side shell.

Photo 13: Dolly #4 on the side shell.

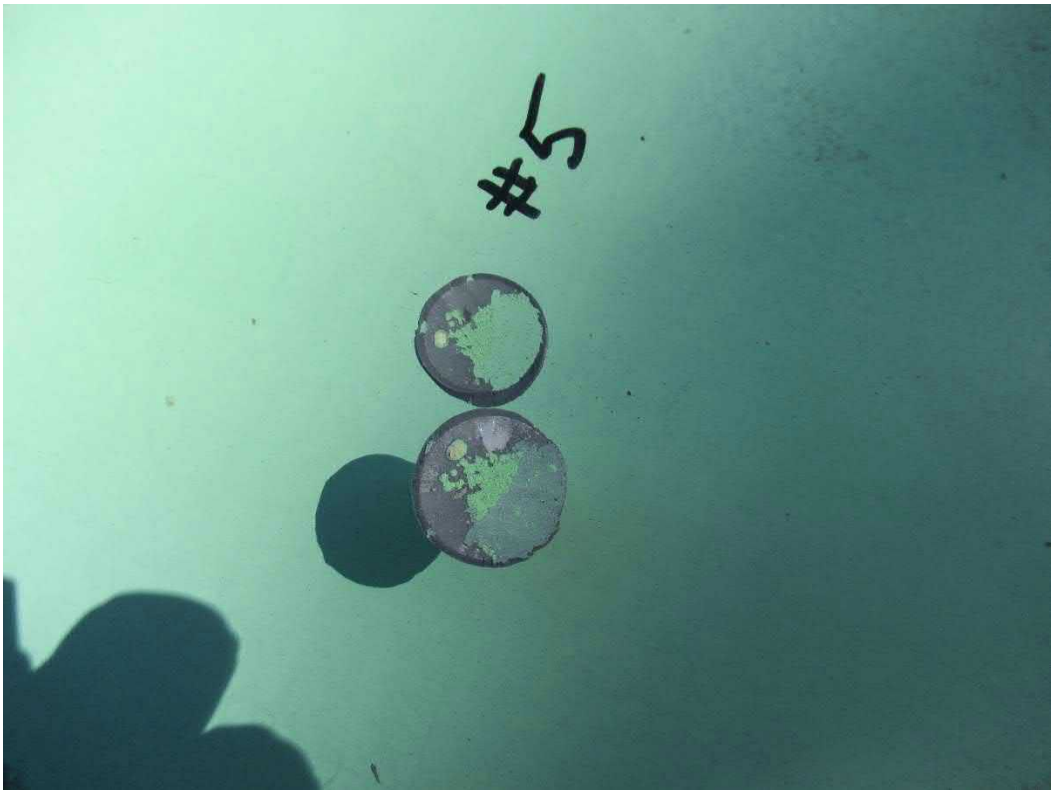

Photo 14: Dolly #5 on the roof.

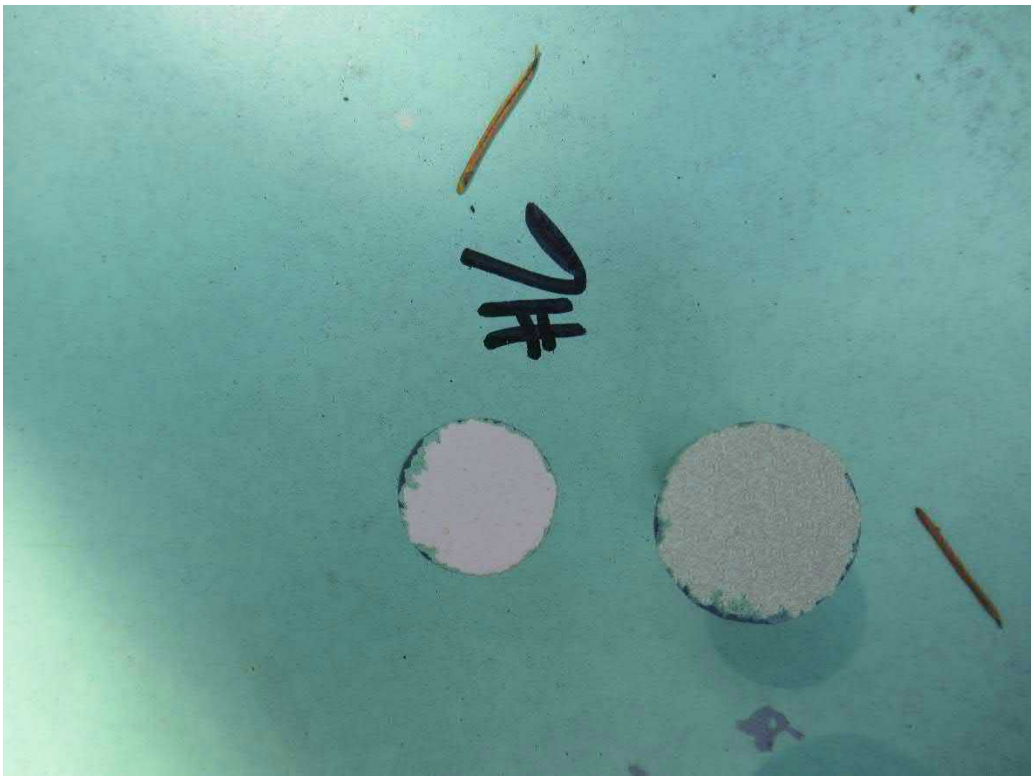

Photo 15: Dolly #6 on the roof.

Photo 16: Ladder, railings, camera, and access hatch.

Photo 17: Level gauge.

Photo 18: Anchorage, roof vent, and cathodic protection box.

Photo 19: Roof vent with rust on the interior of screen.

Photo 20: Cathodic protection box.

Photo 21: Looking north. Note the algae in the right side of the photo.

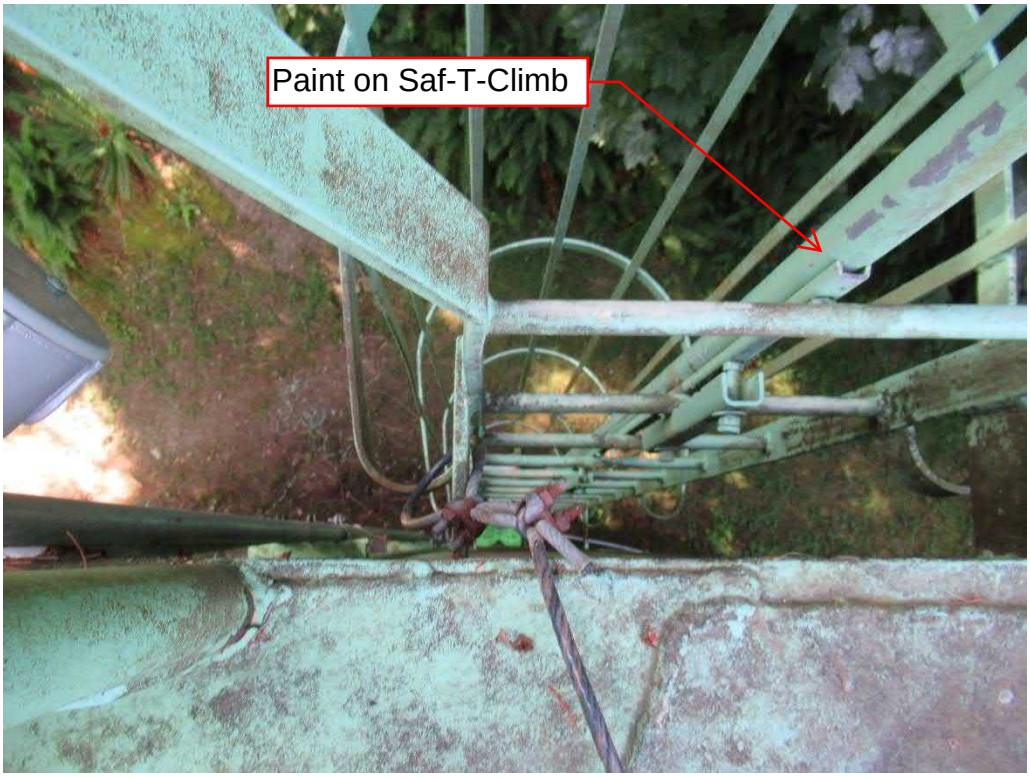

Photo 22: Safety line tied to ladder standoff. Note the Saf-T-Climb is painted.

Photo 23: Access hatch lock.

Photo 24: Corrosion adjacent to the access hatch.

Photo 25: Closeup of the algae on the roof.

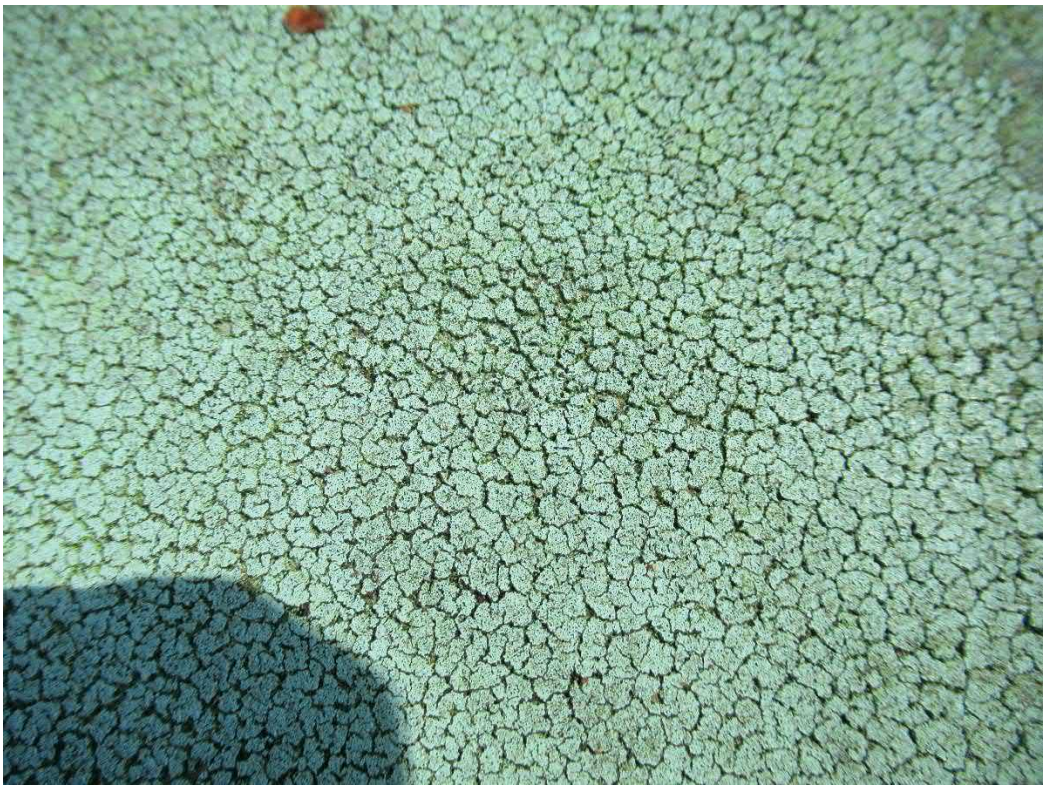

Photo 26: Most likely lichens growing on the roof.

Photo 27: Coating delamination on the roof.

Photo 28: Coating delamination on the roof.

Photo 29: Inside of the access hatch.

Photo 30: Inlet pipe diffuser.

Photo 31: Interior baffle walls.

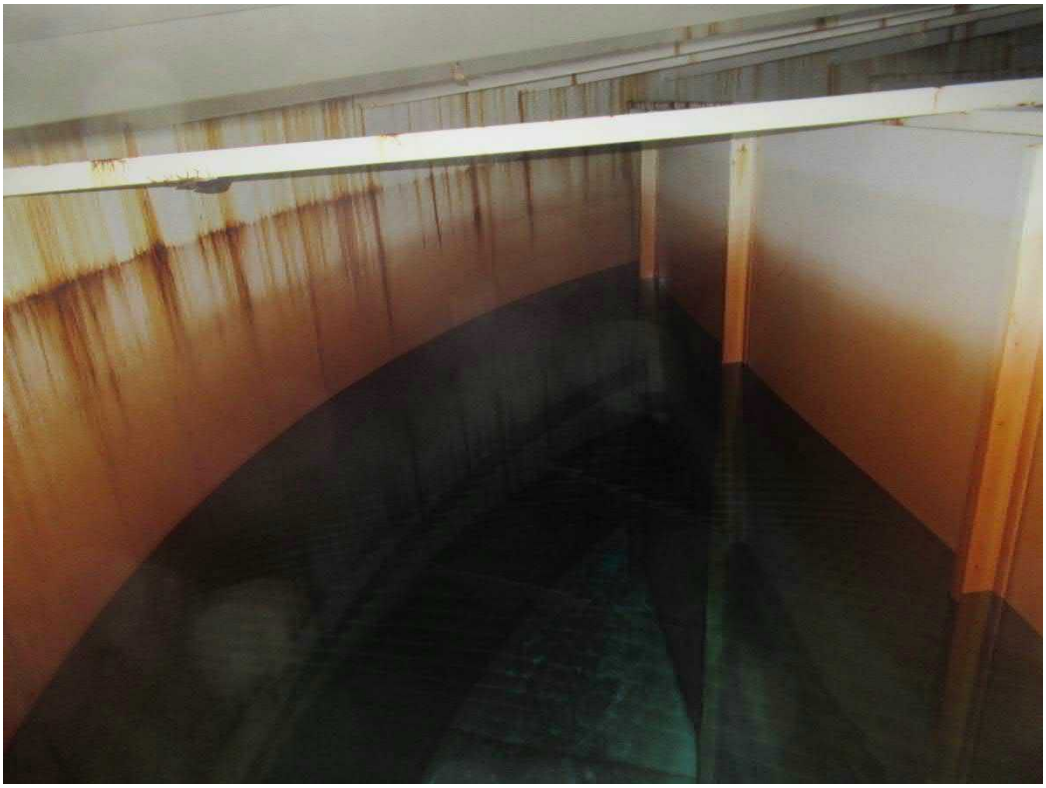

Photo 32: Interior condition.

Photo 33: Interior condition.

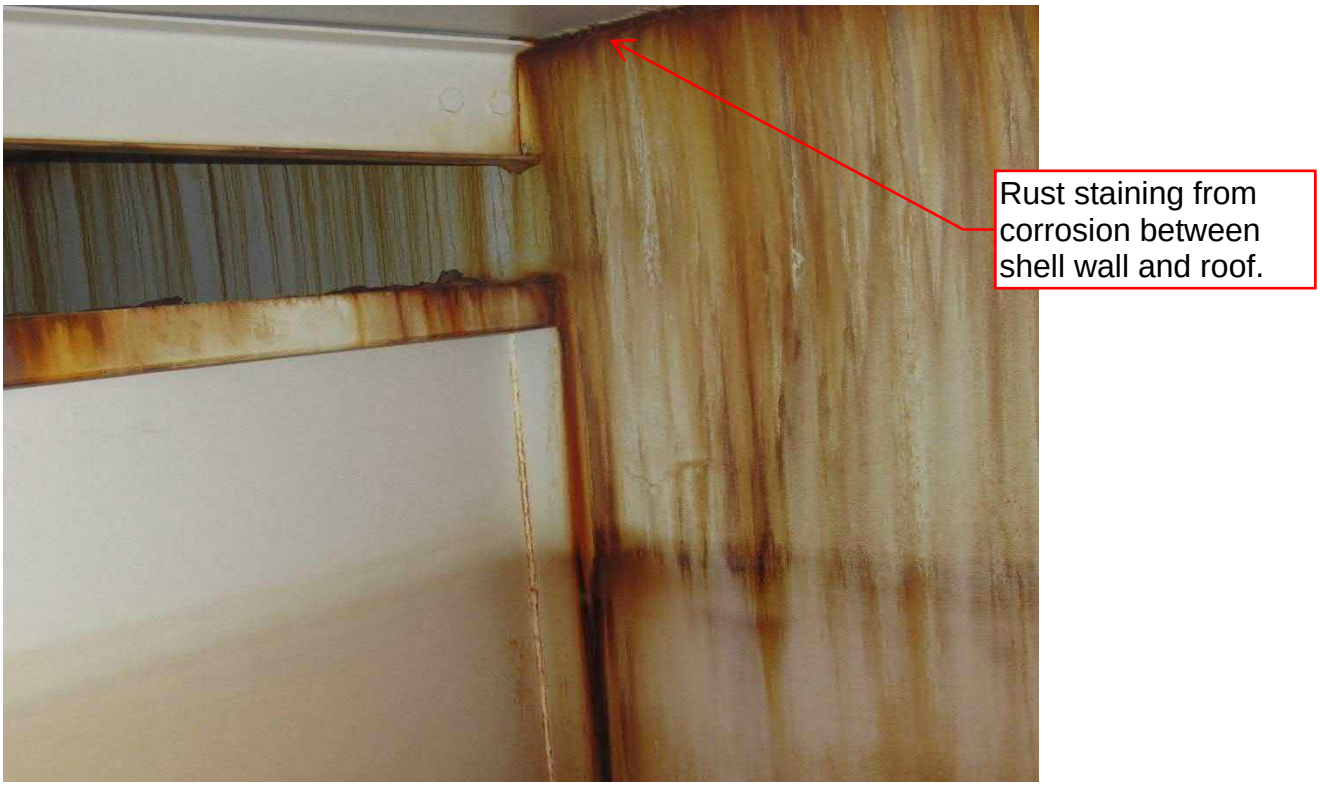

Photo 34: Interior condition.

Photo 35: Interior condition. Note delamination in roof.

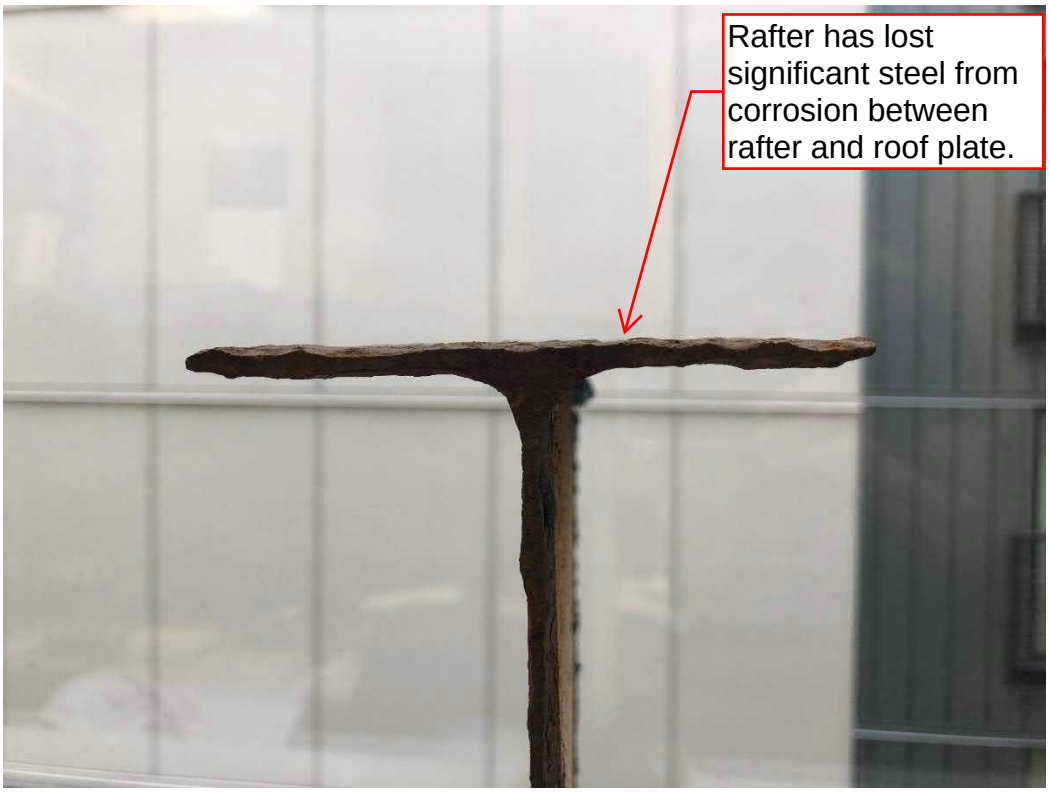

Photo 36: Corroded Rafter

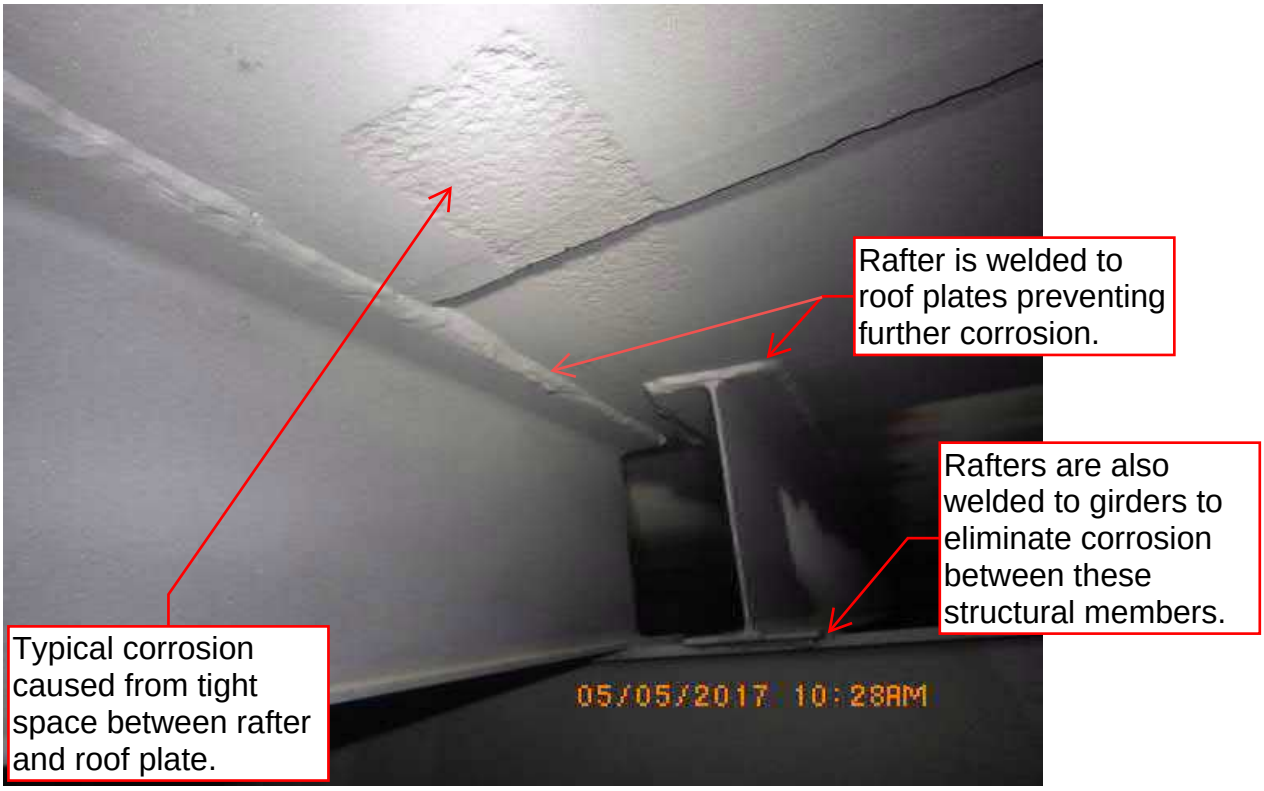

Photo 37: Seal welded rafter cut back from original location.

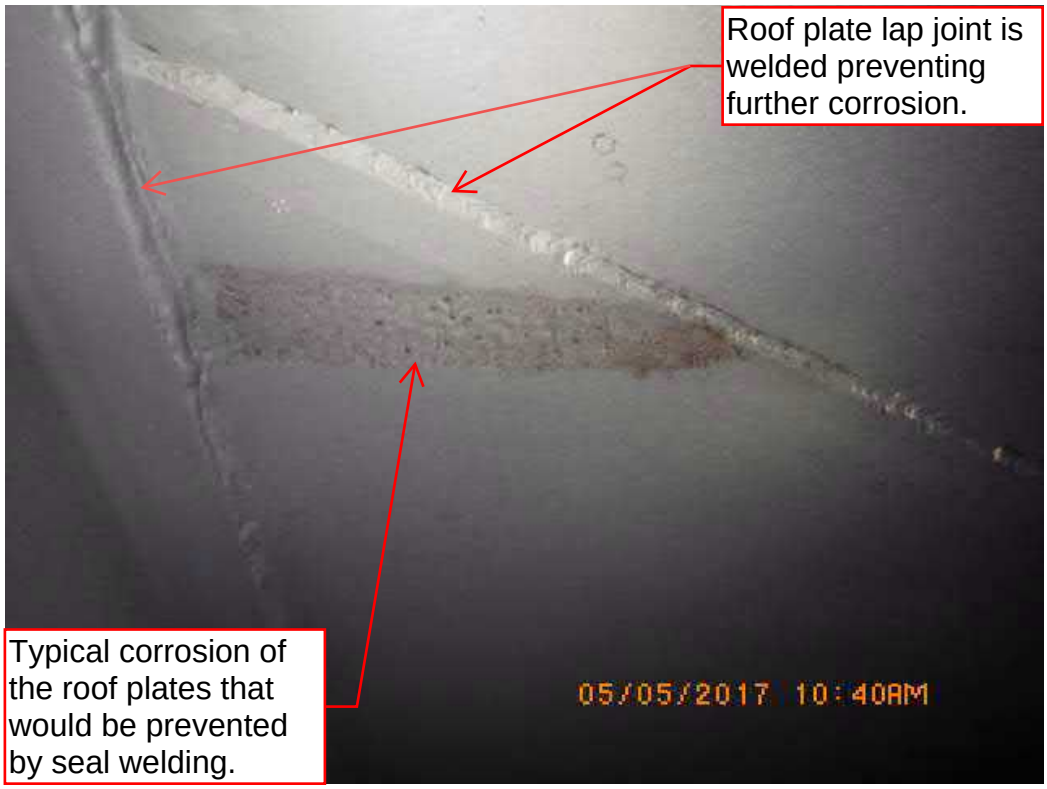

Photo 38: Seal welded roof lap joints. Note the corrosion from the previous rafter location.

B7

Created: 2020-08-19 12:56:36
PosiTest AT-A S/N: 17275

Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
1	1214 3500	12.9 0.0/0.0	20	100	Pulled 2020-08-19 12:57:28	X

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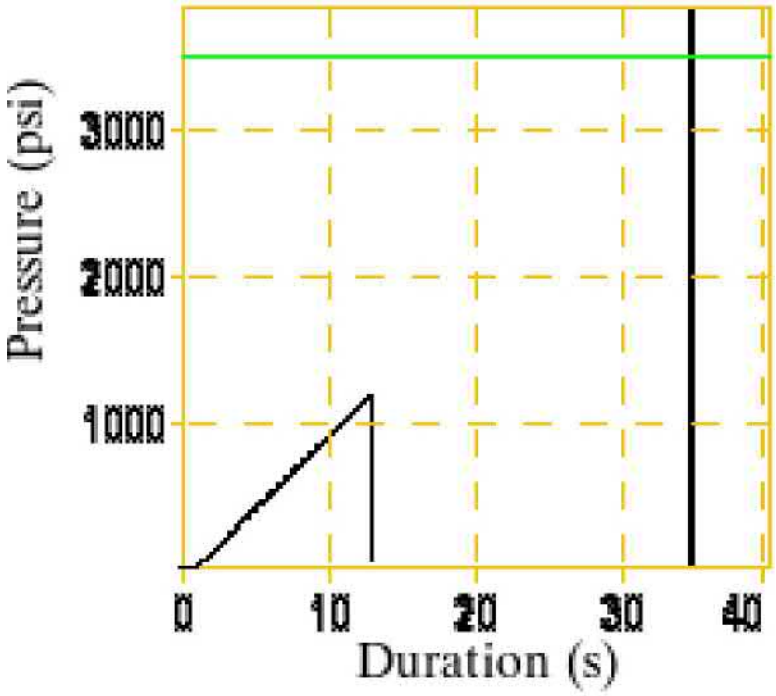
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



B7 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
2	1089 3500	11.8 0.0/0.0	20	100	Pulled	X 12:59:25

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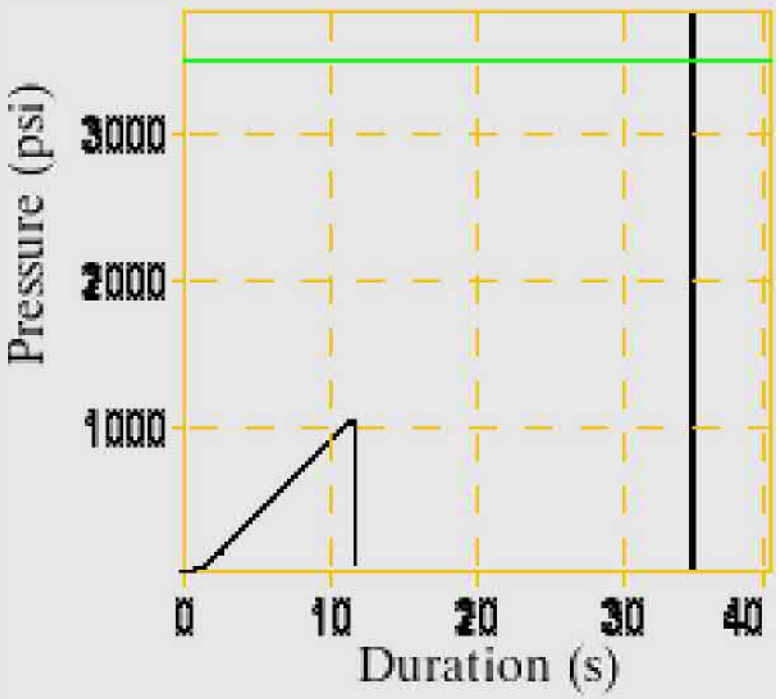
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



B7 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
3	1496 3500	16.1 0.0/0.0	20	100	Pulled	X 13:01:21

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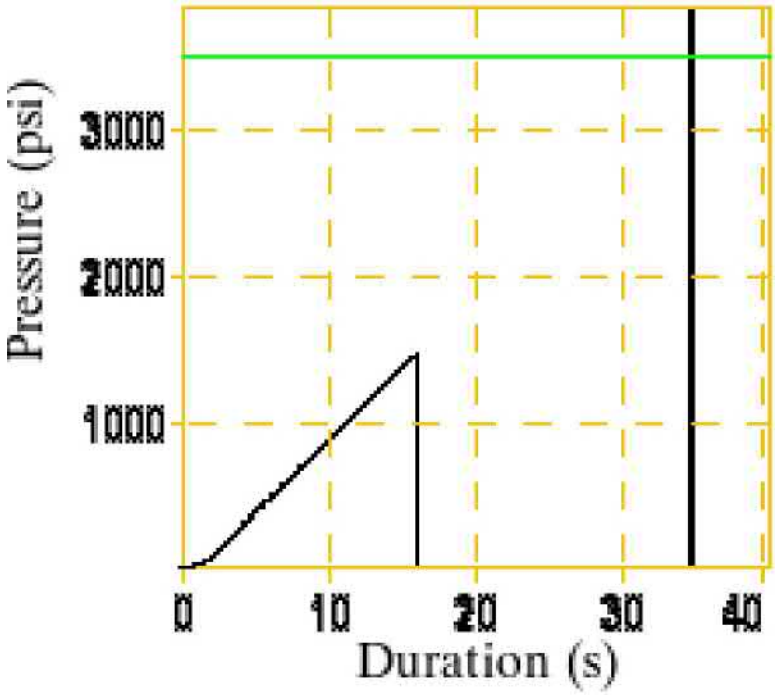
Substrate: A	0	A/B Interface:	0



B7 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
4	1622 3500	17.2 0.0/0.0	20	100	Pulled	X 13:04:38

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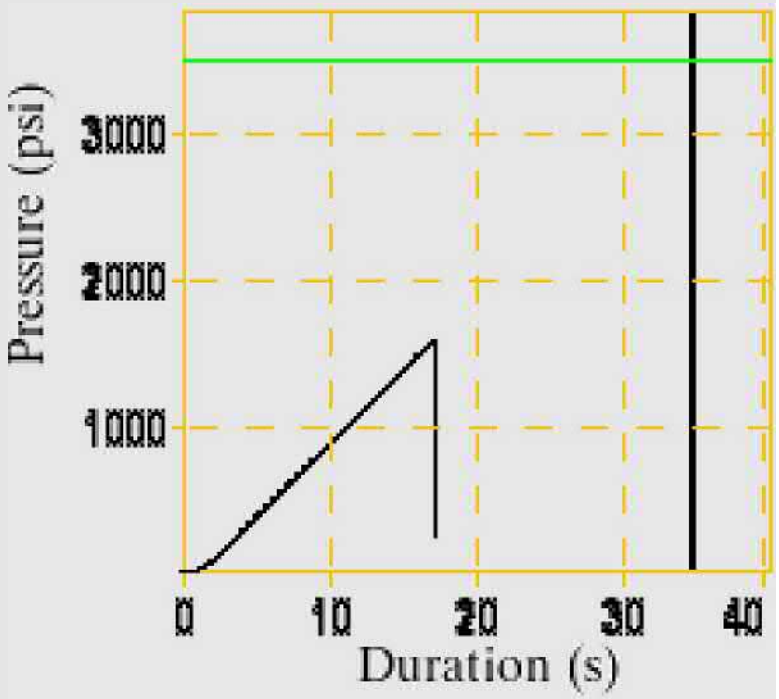
Substrate: A	0	A/B Interface:	0



B7 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
5	2298 3500	24.0 0.0/0.0	20	100	Pulled	X 13:29:03

Glue Y:	0	Y/Z Interface:	0
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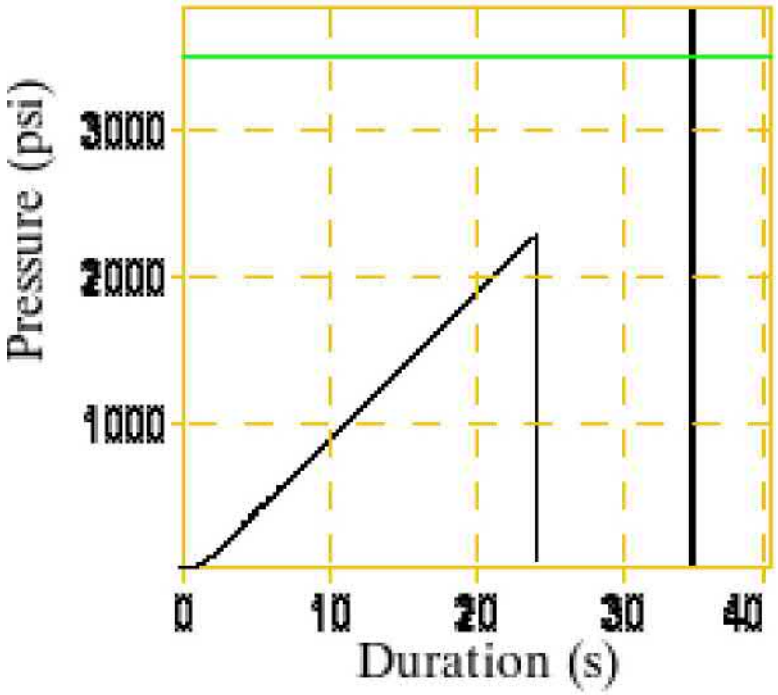
Substrate: A	0	A/B Interface:	0



B7 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly Size (mm)	Rate (psi/s)	Result	Pass/Fail Time
6	1273 3500	13.6 0.0/0.0	20	100	Pulled	X 13:36:11

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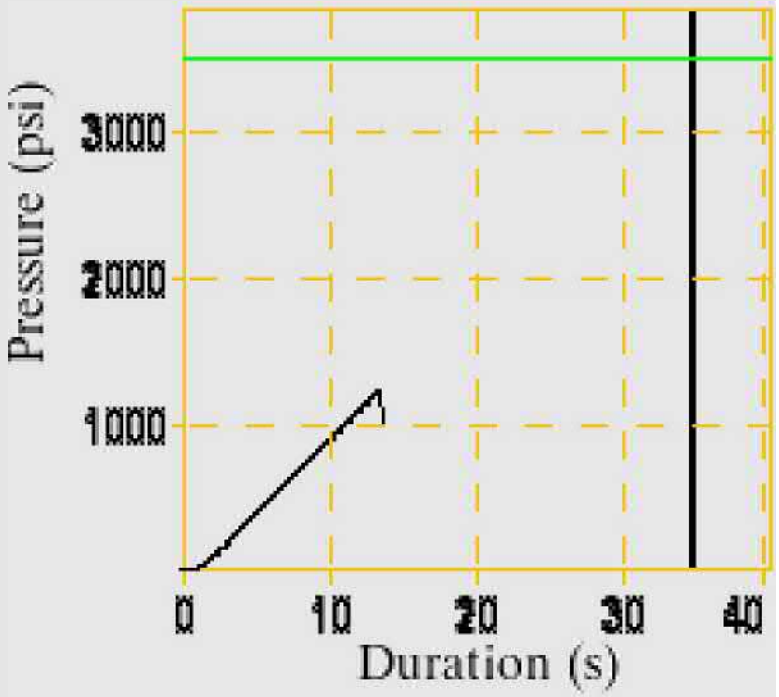
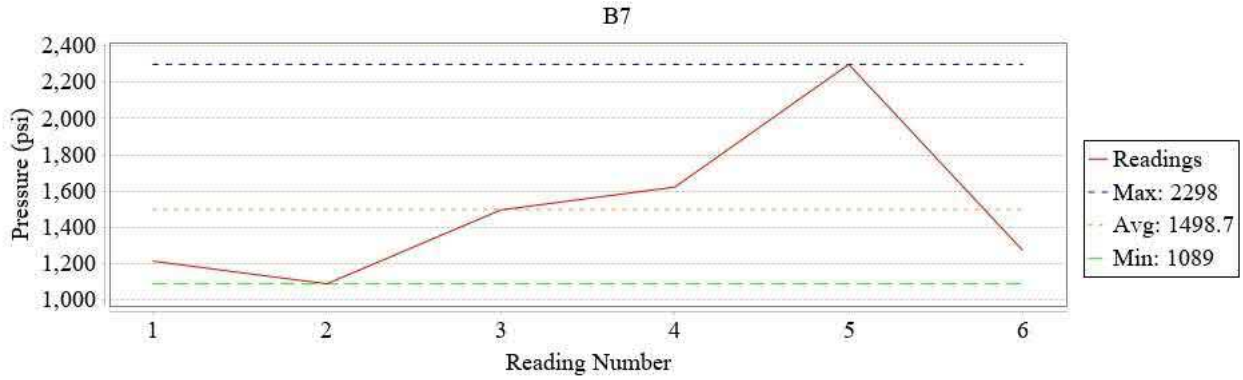
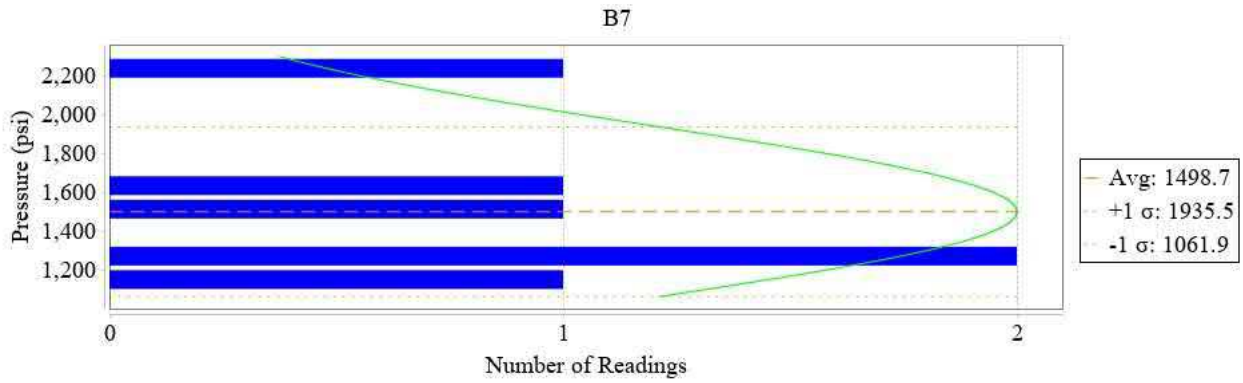
Substrate: A	0	A/B Interface:	0






B7
Pressure (psi)
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2,000
1,800
1,600
1,400
1,200
0
1
2
Number of Readings
Avg: 1498.7
+1 σ: 1935.5
-1 σ: 1061.9

EXHIBIT B

COATING SYSTEM SAMPLE ANALYSIS

EXHIBIT C

COATING ALTERNATIVE COST ESTIMATES

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-2 - Recommended Modifications to CCB
September 11, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 30,000	$ 30,000
2	Removal of Mill Scale	4000	SF	$ 4	$ 16,000
3	Tank Exterior - Preparation & Recoating	1	LS	$ 105,000	$ 105,000
4	Tank Interior - Preparation & Recoating	1	LS	$ 115,000	$ 115,000
5	Tank Containment	1	LS	$ 35,000	$ 35,000
6	Interior Seal Welding, Complete	1	LS	$ 75,000	$ 75,000
7	Access Hatch	1	LS	$ 10,000	$ 10,000
8	Roof Vent & Additional Tie-offs	1	LS	$ 25,000	$ 25,000
9	Surface Restoration	1	LS	$ 5,000	$ 5,000
				Subtotal*	**$ 416,000**
				Contingency (20%)	$ 83,200
				Subtotal	**$ 499,200**
				Washington State Sales Tax (9.0%)**	$ 44,900
				Subtotal	**$ 544,100**
				Design and Project Administration (25.0%)***	$ 136,000
				TOTAL CONSTRUCTION COST	**$ 680,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-2 - Reduced Modifications to CCB
September 11, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 30,000	$ 30,000
2	Removal of Mill Scale	4000	SF	$ 4	$ 16,000
3	Tank Exterior - Preparation & Recoating	1	LS	$ 105,000	$ 105,000
4	Tank Interior - Preparation & Recoating	1	LS	$ 115,000	$ 115,000
5	Tank Containment	1	LS	$ 35,000	$ 35,000
6	Interior Seal Welding, Complete	1	LS	$ -	$ -
7	Access Hatch	1	LS	$ -	$ -
8	Roof Vent & Additional Tie-offs	1	LS	$ -	$ -
9	Surface Restoration	1	LS	$ 5,000	$ 5,000
				Subtotal*	**$ 306,000**
				Contingency (20%)	$ 61,200
				Subtotal	**$ 367,200**
				Washington State Sales Tax (9.0%)**	$ 33,000
				Subtotal	**$ 400,200**
				Design and Project Administration (25.0%)***	$ 100,100
				TOTAL CONSTRUCTION COST	**$ 500,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-2 - New Welded Steel Tank
September 11, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 30,000	$ 30,000
2	Earthwork & TESC	1	LS	$ 20,000	$ 20,000
3	Excavation Safety Systems	1	LS	$ 5,000	$ 5,000
4	Unsuitable Excavation	25	CY	$ 250	$ 6,250
5	Welded Steel Tank	1	LS	$ 275,000	$ 275,000
6	Safety Appurtenances	1	LS	$ 50,000	$ 50,000
7	Piping, Fittings, and Appurtenances	1	LS	$ 100,000	$ 100,000
8	Connection to Existing System	1	LS	$ 20,000	$ 20,000
9	Interior and Exerior Coating	1	LS	$ 200,000	$ 200,000
				Subtotal*	**$ 706,250**
				Contingency (20%)	$ 141,300
				Subtotal	**$ 847,550**
				Washington State Sales Tax (9.0%)**	$ 76,300
				Subtotal	**$ 923,850**
				Design and Project Administration (25.0%)***	$ 231,000
				TOTAL CONSTRUCTION COST	**$ 1,155,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

EXHIBIT D

2018 COATINGS AND CORROSION INSPECTION BY H_2O SOLUTIONS

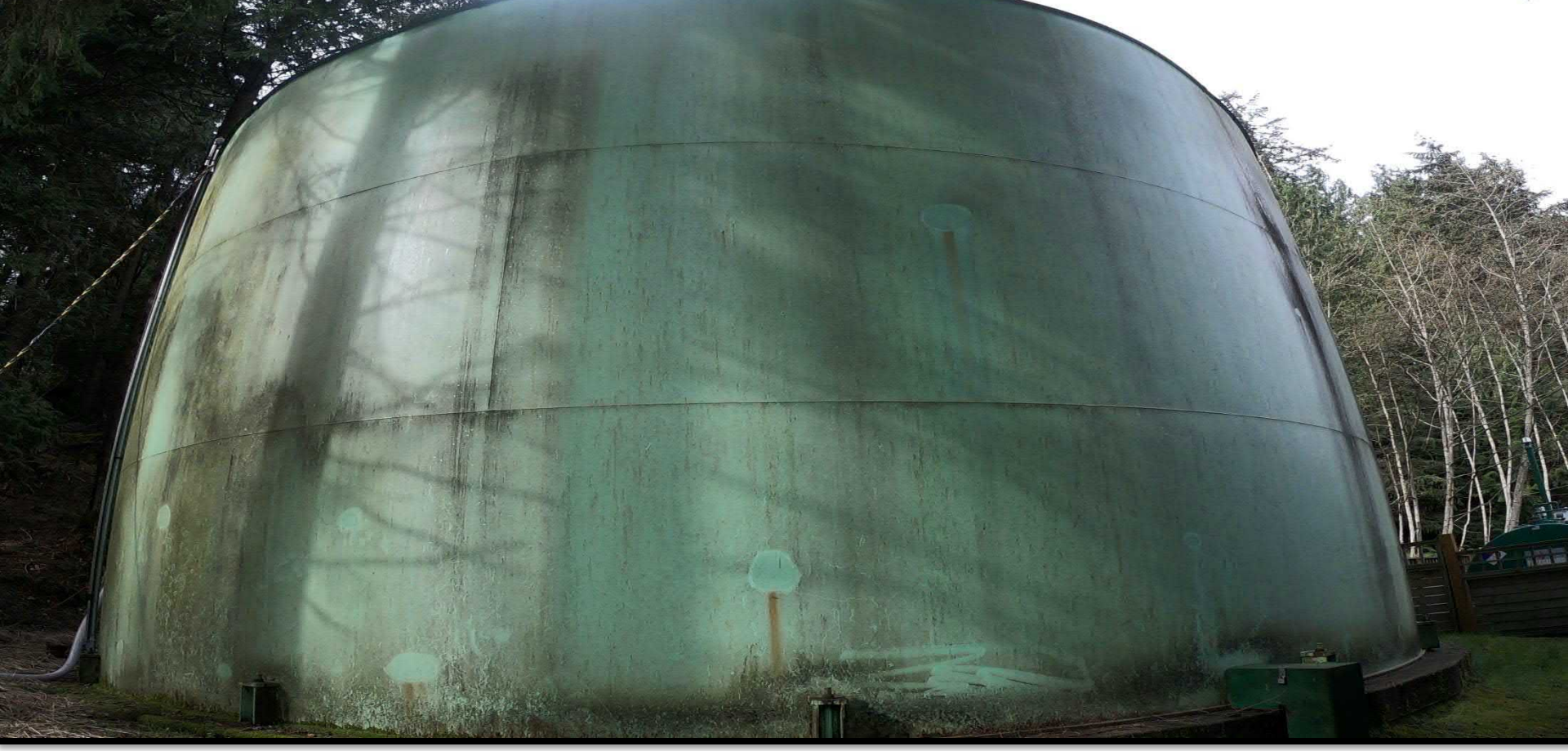
LAKE WHATCOM WATER & SEWER DISTRICT

Treatment Plant

Reservoir

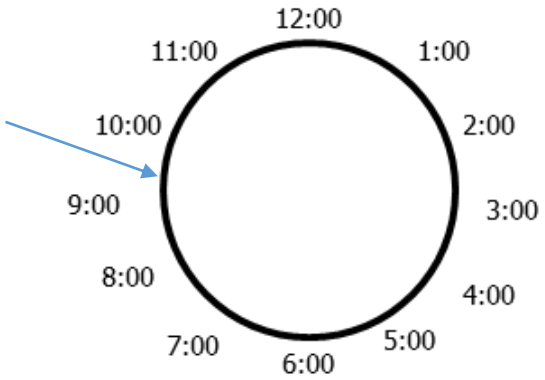
April 11, 2018

H2O SOLUTIONS,LLC



Date of Cleaning & Inspection :	April 11, 2018	Tank Name :	Treatment Plant
Water Loss from Cleaning:	12,000 Gallons	Height :	40’
Construction Type:	Steel	Diameter or L x W :	25’
Capacity(gal):	235,000	Year Built :	1992

Exterior Wall



Description

Appeared to be in good condition with areas of minor surface corrosion. Overall 5% corrosion present.

Rust Grade

4

Coating System

Appeared to be in good condition with chalking and delamination. Overall 10% coating failure.

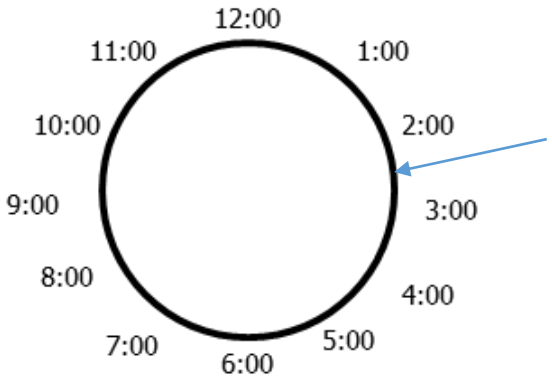
Recommendations

None at this time

Exterior Wall

Description

Appeared to be in good condition with areas of minor surface corrosion. Overall 5% corrosion present.



Rust Grade

4

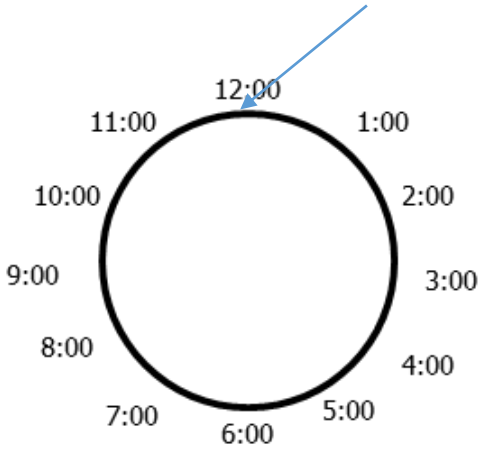
Coating System

Appeared to be in good condition with chalking and delamination. Overall 10% coating failure.

Recommendations

None at this time

Exterior Ladder



Description

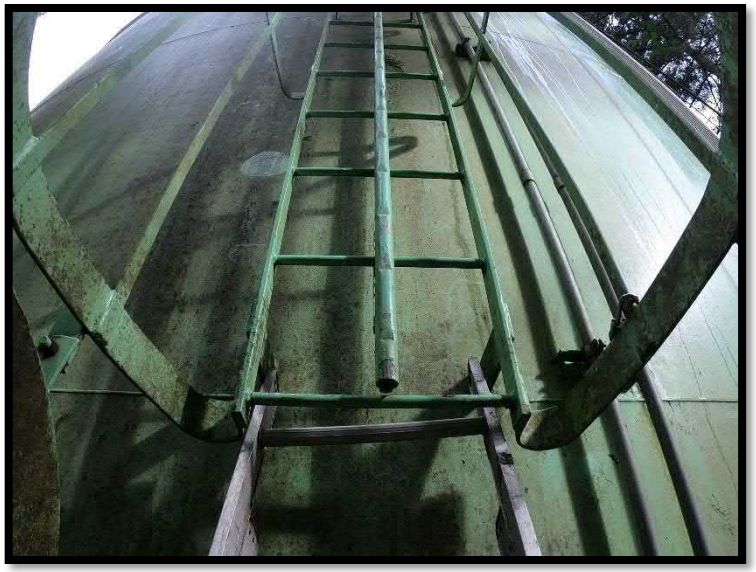
Structurally sound and in good condition. A few isolated spots of minor surface corrosion. Overall 5% corrosion present.

Rust Grade

4

Coating System

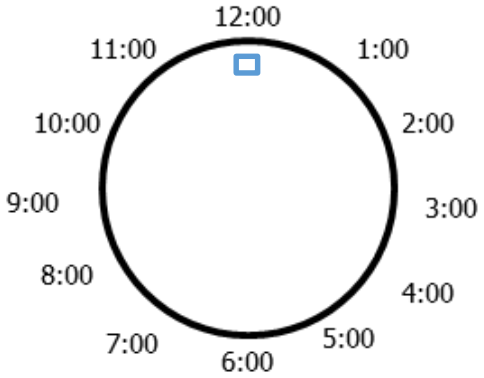
Appeared to be in good condition with minor chalking. Overall less than 5% coating failure.



Recommendations

None at this time.

Exterior Hatch Lid



Description

Appeared to be in good working condition with a few spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

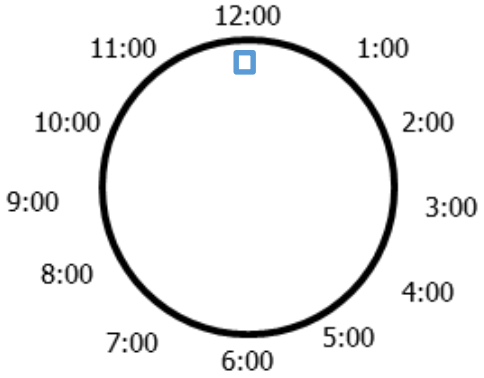
Coating System

Appeared to be in good condition with minor chalking. Overall less than 5% coating failure.

Recommendations

None at this time.

Exterior Hatch



Description

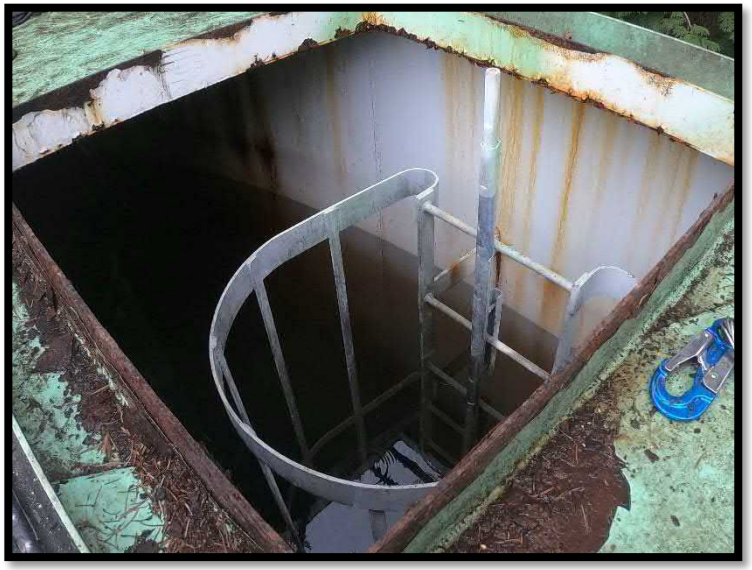
Appeared to be in good working condition with areas of surface corrosion. Overall 20% corrosion present.

Rust Grade

3

Coating System

Appeared to be in good condition with chalking, delamination and fading. Overall 25% coating failure.



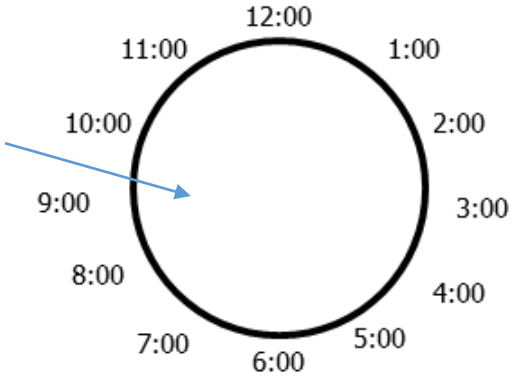
Recommendations

None at this time

Exterior Roof

Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall 5% corrosion present.



Rust Grade

4

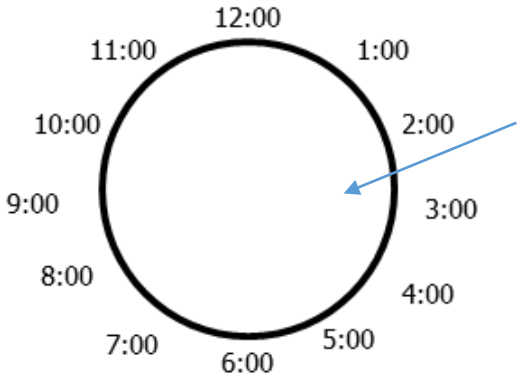
Coating System

Appeared to be in good condition with minor chalking and organic growth build up. Overall 5% coating failure.

Recommendations

None at this time

Exterior Roof



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall 5% corrosion present.

Rust Grade

4

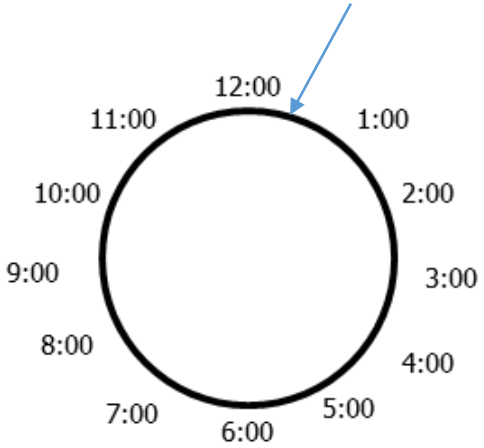
Coating System

Appeared to be in good condition with minor chalking and organic growth build up. Overall 5% coating failure.

Recommendations

None at this time

Exterior Railing



Description

Appeared to be in good condition with areas of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

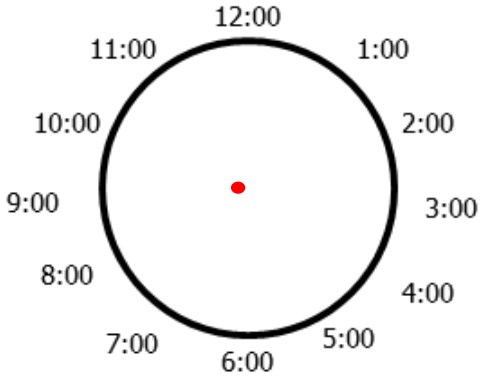
Coating System

Appeared to be in good condition with chalking and delamination. Overall 5% coating failure.

Recommendations

None at this time

Exterior Vent



Description

Appeared to be in good working condition with a few spots of minor surface corrosion. Overall less than 5% corrosion present. Fine mesh screen present and in good condition.

Rust Grade

5

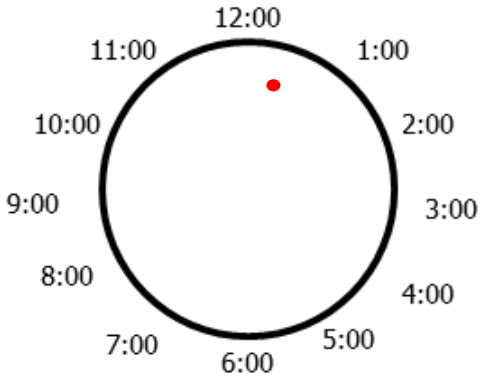
Coating System

Appeared to be in good condition with chalking and delamination. Overall 5% coating failure.

Recommendations

None at this time.

Exterior Telemetry



Description

Appeared to be in good working condition.

Rust Grade

N/A

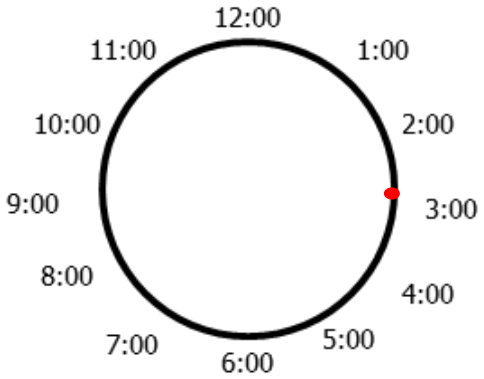
Coating System

N/A

Recommendations

None at this time

Exterior Manway



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

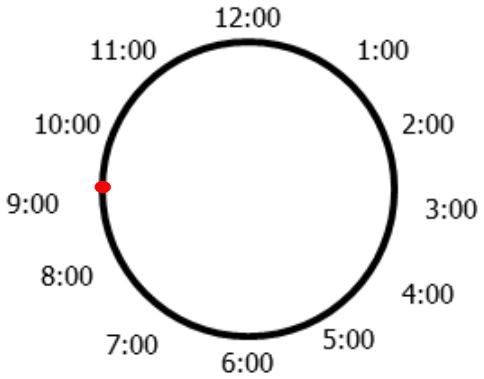
Coating System

Appeared to be in good condition with minor chalking and delamination. Overall 5% coating failure.

Recommendations

None at this time

Exterior Manway



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

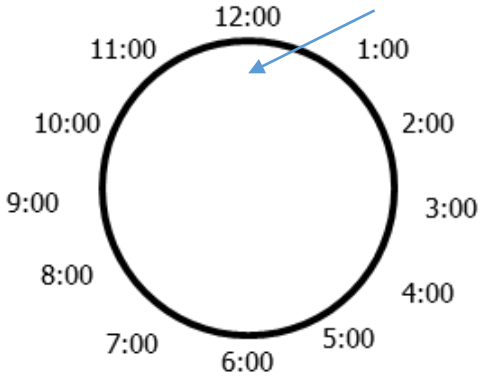
Coating System

Appeared to be in good condition with minor chalking and delamination. Overall 5% coating failure.

Recommendations

None at this time

Interior Ladder



Description

Structurally sound and in fair condition. Areas of moderate to heavy surface corrosion on the rungs. Overall 50% corrosion present.

Rust Grade

1

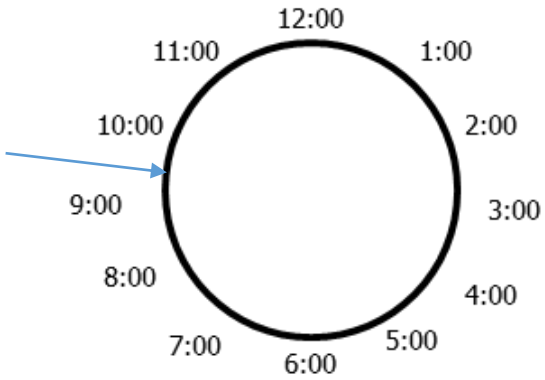
Coating System

Appeared to be in poor condition with chalking and delamination. Overall 75% coating failure.

Recommendations

None at this time.

Interior Wall



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

Coating System

Appeared to be in good condition with chalking, delamination, fading and blistering. Overall 5% coating failure.

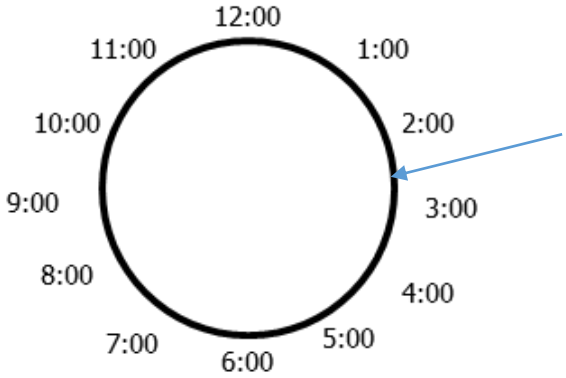
Recommendations

None at this time

Interior Wall

Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.



Rust Grade

6

Coating System

Appeared to be in good condition with chalking, delamination, fading and blistering. Overall 5% coating failure.

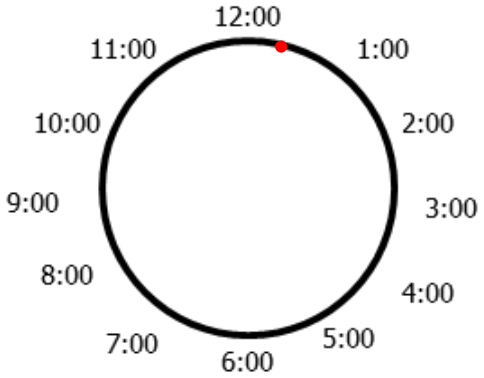
Recommendations

None at this time

Interior Telemetry

Description

Appeared to be in good working condition.



Rust Grade

N/A

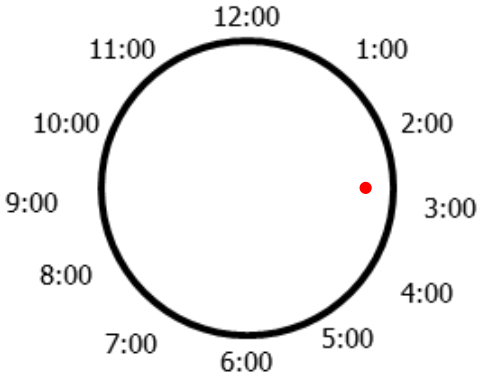
Coating System

N/A

Recommendations

None at this time

Interior Overflow



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall 5% corrosion present.

Rust Grade

4

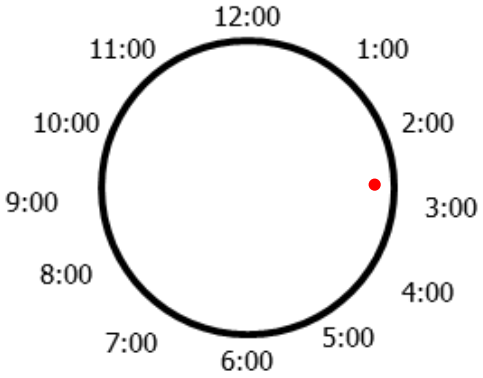
Coating System

Appeared to be in good condition with chalking and blistering. Overall 5% coating failure.

Recommendations

None at this time

Interior Overflow Base



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall 5% corrosion present.

Rust Grade

4

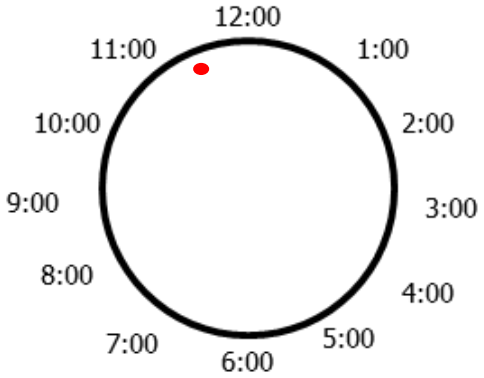
Coating System

Appeared to be in good condition with chalking and blistering. Overall 5% coating failure.

Recommendations

None at this time

Interior Inlet Base



Description

Appeared to be in good working condition with areas of moderate surface corrosion. Overall 25% corrosion present.

Rust Grade

2

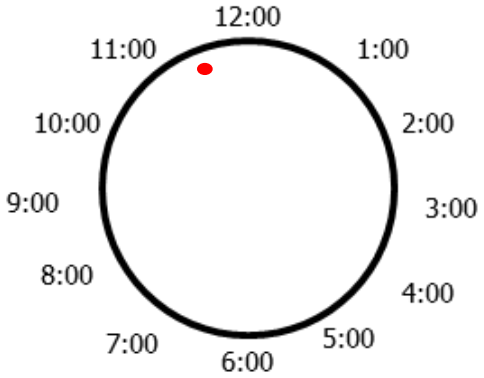
Coating System

Appeared to be in fair condition with delamination. Overall 50% coating failure.

Recommendations

None at this time

Interior Inlet



Description

Appeared to be in good working condition with areas of moderate surface corrosion. Overall 25% corrosion present.

Rust Grade

2

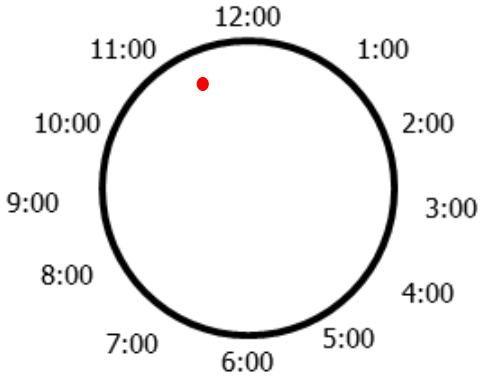
Coating System

Appeared to be in fair condition with delamination. Overall 50% coating failure.

Recommendations

None at this time

Interior Outlet



Description

Appeared to be in good working condition with areas of moderate surface corrosion. Overall 25% corrosion present.

Rust Grade

2

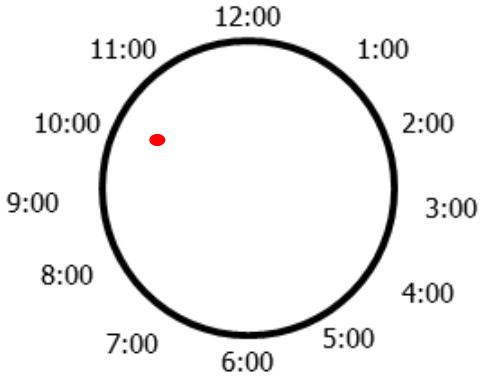
Coating System

Appeared to be in fair condition with delamination. Overall 50% coating failure.

Recommendations

None at this time

Interior Drain



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

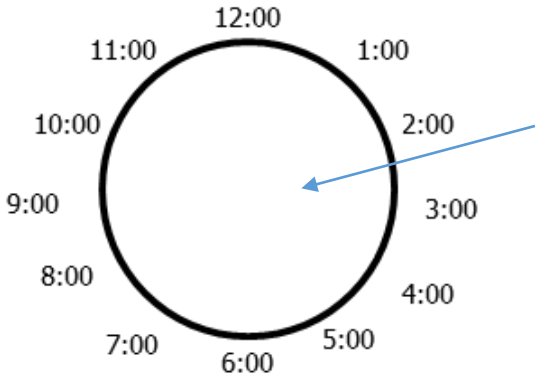
Coating System

Appeared to be in good condition with minor chalking. Overall less than 5% coating failure.

Recommendations

None at this time

Interior Ceiling



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

Coating System

Appeared to be in good condition with chalking. Overall 5% coating failure.

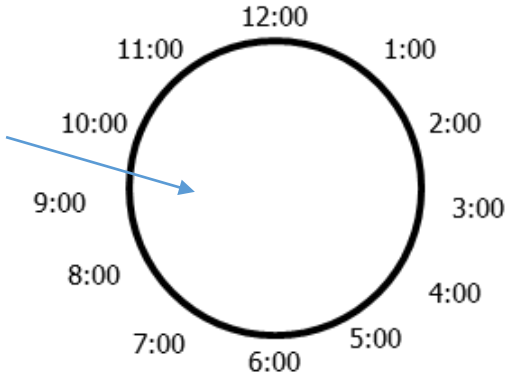
Recommendations

None at this time

Interior Ceiling

Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.



Rust Grade

6

Coating System

Appeared to be in good condition with chalking. Overall 5% coating failure.

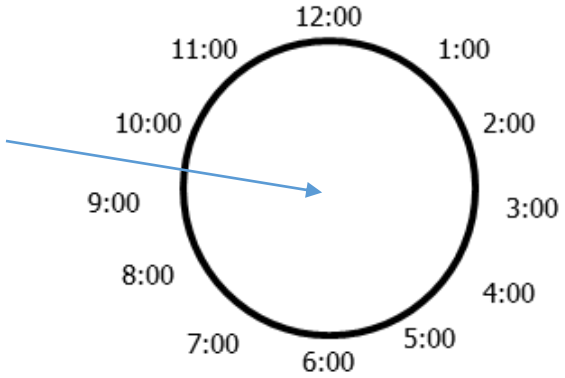
Recommendations

None at this time

Interior Ceiling

Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.



Rust Grade

6

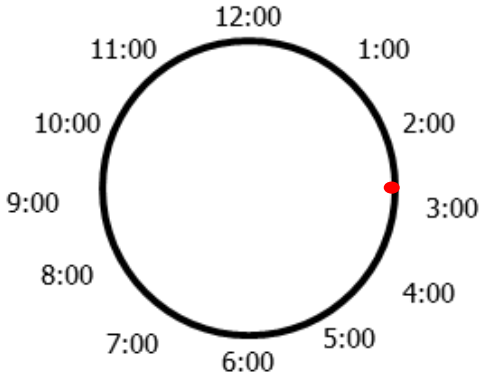
Coating System

Appeared to be in good condition with chalking. Overall 5% coating failure.

Recommendations

None at this time

Interior Manway



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall 10% corrosion present. Gasket is in good condition.

Rust Grade:

3

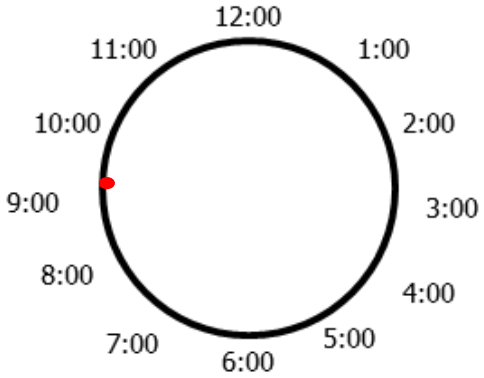
Coating System

Appeared to be in good condition with chalking and blistering. Overall 5% coating failure.

Recommendations

None at this time

Interior Manway



Description

Appeared to be in good condition with a few isolated spots of minor surface corrosion. Overall 10% corrosion present. Gasket is in good condition.

Rust Grade:

3

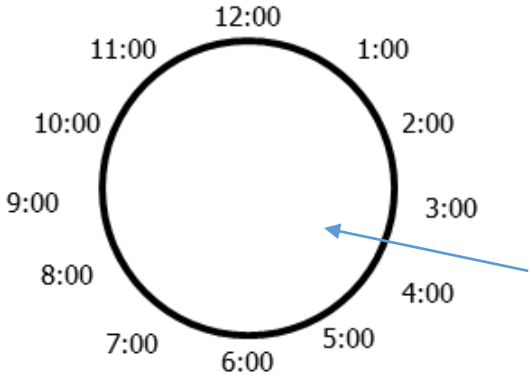
Coating System

Appeared to be in good condition with chalking and blistering. Overall 5% coating failure.

Recommendations

None at this time

Interior Floor



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

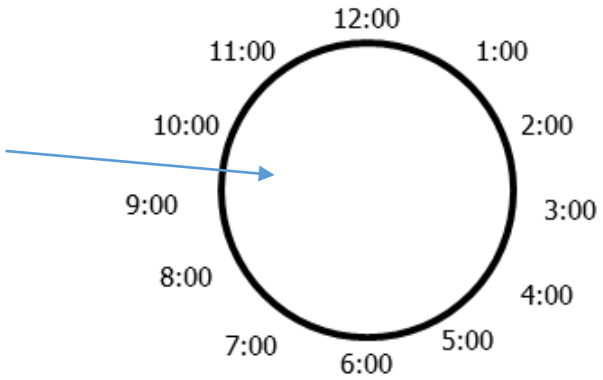
Coating System

Appeared to be in good condition with chalking, blistering and staining. Overall 10% coating failure.

Recommendations

None at this time

Interior Floor



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall les than 5% corrosion present.

Rust Grade

6

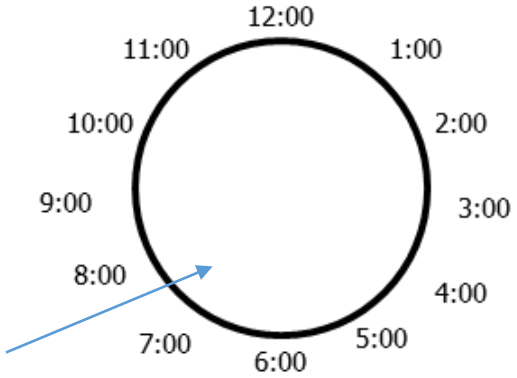
Coating System

Appeared to be in good condition with chalking, blistering and staining. Overall 10% coating failure.

Recommendations

None at this time

Interior Floor



Description

Appeared to be in good working condition with a few isolated spots of minor surface corrosion. Overall less than 5% corrosion present.

Rust Grade

6

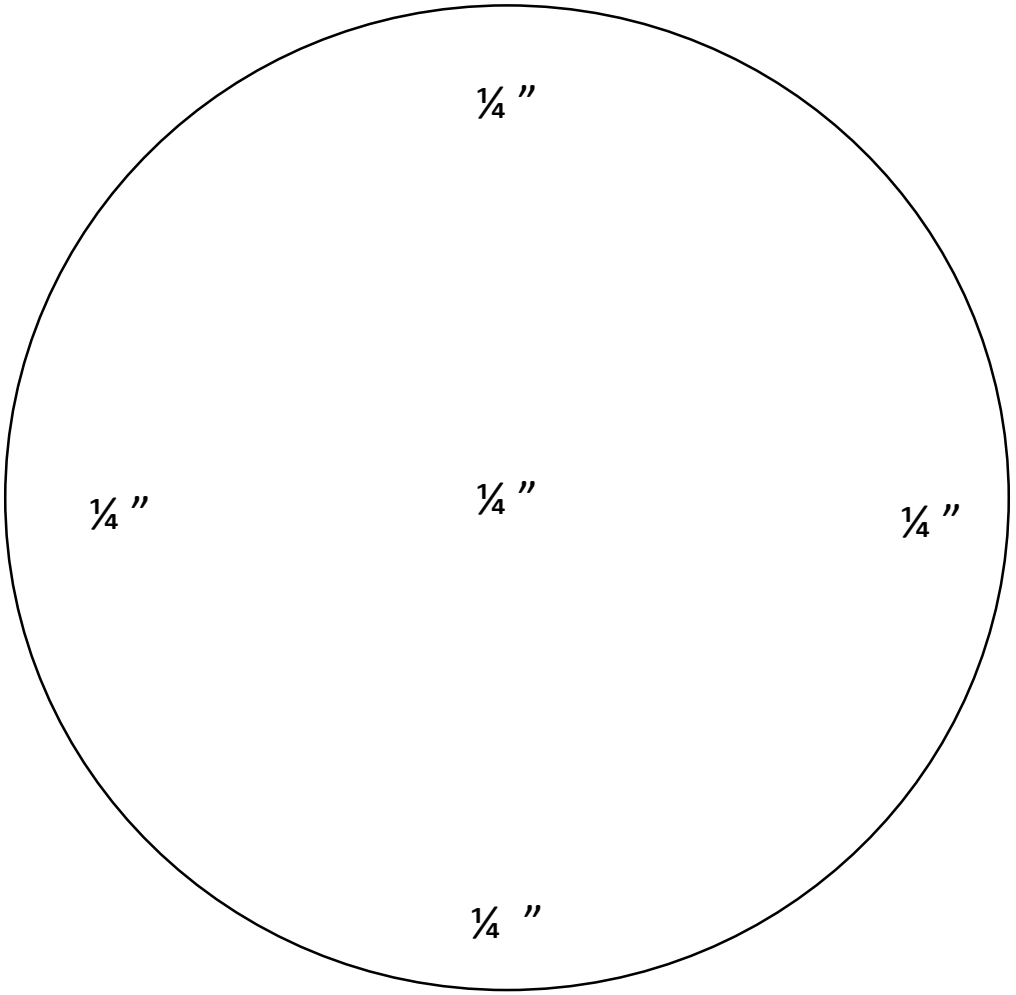
Coating System

Appeared to be in good condition with chalking, blistering and staining. Overall 10% coating failure.

Recommendations

None at this time

Sediment Depth



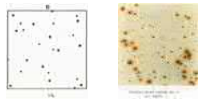
References

Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 (1989)

The graphical representations show examples of area percentages, which may be helpful in rust grading. The use of photographical reference standards requires the following precautions:

- Some finishes are stained by rust. This staining must not be confused with the actual rusting involved.
- Accumulated dirt or other material may make accurate determination of the degree of rusting difficult.
- Certain types of deposited dirt that contain iron or iron compounds may cause surface discoloration that should not be mistaken for corrosion.
- It must be realized that failure may vary over a given area and discretion must therefore be used in applying these reference standards.
- In evaluating surfaces, consideration shall be given to the color of the finish coating, since failures will be more apparent on a finish that shows color contrast with rust, such as white, than on a similar color, such as iron oxide finish.
- The photographic reference standards are not required for use of the rust-grade scale since the scale is based upon the percent of the area rusted and any method of assessing area rusted may be used to determine the rust grade.

A	Similar to European Scale of Degree of rusting for Anti-Corrosive Paints (1961) (Black & White)
B	Corresponds to SSPC Initial Surface Conditions E (0 - 0.1%) and BISRA (British Iron and Steel Research Association) 0.1%
C	Corresponds to SSPC Initial Surface Conditions F (0.1%-1%) and BISRA 1%
D	Corresponds to SSPC Initial Surface Conditions G (1 - 10%)
E	Rust grades below 4 are of no practical importance in grading performance of paints
F	Corresponds to SSPC Initial Surface Condition H (50 - 100%)

Rust Grades [A]	Description	Graphical Representation
10	No rusting or less than 0.01% of surface rusted	Unnecessary
9	Minute rusting less than 0.03% of surface rusted	
8[B]	Few isolated rust spots less than 0.1% of surface rusted	
7	Less than 0.3% of surface rusted	
6[C]	Extensive rust spots but less than 1% of surface rusted	
5	Rusting to the extent of 3% of surface rusted	
4[D]	Rusting to the extent of 10% of surface rusted	
3[E]	Approximately on sixth of the surface rusted 16%	
2	Approximately one third of the surface rusted 33%	
1	Approximately one half of the surface rusted 50%	

AGENDA BILL Item 7.B	**Date Change—First Board Meeting of November**			
DATE SUBMITTED:	September 14, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. none		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

The District Board of Commissioners regularly meet at 6:30 p.m. on the second Wednesday and at 8:00 a.m. on the last Wednesday of each month, as codified in Section 3.8.1 of the District Administrative Code. However, the first regularly scheduled meeting of November falls on a federal holiday (Veterans Day). As District offices will be closed in observance of Veterans Day, District staff recommends that the Board of Commissioners meeting be rescheduled for the following evening (6:30 p.m. on Thursday, November 12). Please note that this change will also accommodate Board and/or staff attendance of the monthly Washington Association of Sewer and Water Districts Section III meeting scheduled for the evening of Tuesday, November 10.

FISCAL IMPACT

No impact is anticipated.

RECOMMENDED BOARD ACTION

Staff recommends that the Board revise the date of their first meeting in November to November 12 in recognition of Veterans Day on Wednesday, November 11.

PROPOSED MOTION

Recommended motion is:

> "I move to reschedule the date of the first regularly scheduled meeting of the Board of Commissioners during the month of November to be held at 6:30 p.m. on Thursday, November 12."

AGENDA BILL Item 7.C	**Agate Creek Restoration Contract Close-out**			
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. none		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

The Board of Commissioners approved the contract award of the Agate Creek Streambed Restoration Contract (District Capital Project No. M1811-2020) to P&P Excavating LLC during its regularly scheduled meeting on August 26, 2020. P&P Excavating LLC has completed all contract requirements.

FISCAL IMPACT

Original Construction Contract (P&P Excavating LLC)	$23,621.00
Work Completed (Bid Items Nos 2 & 3 not required)	($721.00)
Total Construction Cost	$22,900.00
8.5% Sales Tax	$1,946.50
Grand Total Including Sales Tax	$24,846.50

RECOMMENDED BOARD ACTION

Staff recommends accepting the Agate Creek Streambed Restoration project as complete.

PROPOSED MOTION

Recommended motions are:

> "I move to accept the Agate Creek Streambed Restoration Project as complete and authorize staff to close-out the public works project."

AGENDA BILL Item 7.D	**On-site Sewage System Impact Assessment Findings Discussion**			
DATE SUBMITTED:	September 17, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. none		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Together with the city of Bellingham (City) and Whatcom County (County), the District formed a partnership in 1990 to develop a joint management strategy for the Lake Whatcom watershed. The resulting Lake Whatcom Management Program guides actions by the three entities to protect the quality of Lake Whatcom water. The prior 2015-2019 and current 2020-2024 work plans for the Lake Whatcom Management Program include as an objective under the Monitoring & Data program area "collect and manage data to increase our understanding of water quality and pollution sources, and to guide management decisions."

In the winter/spring of 2017, Herrera Environmental Consultants, Inc. (Herrera) under contract with the District, conducted a series of monitoring events along the north shore of Lake Whatcom to assess the impact of existing on-site sewage systems (commonly referred to as septic systems) on the water quality of the lake. The findings of the assessment, which were published in a report in July 2017, indicate that on-site sewage systems are likely adversely impacting water quality. However, City and County staff raised a number of concerns regarding the monitoring approach of the assessment. To address the data gaps of the 2017 assessment identified by City and County staff, and to collect additional data to better understand the impact of on-site sewage systems, a scope of work for a second round of monitoring was jointly developed by City, County, and District staff, and an interlocal agreement between the District and County was executed on November 20, 2019 to allocate funding requirements of the assessment.

Following a public bid process, Herrera was selected and entered into a contract with the District for conducting a second round of monitoring in 2020, with the scope expanded to address City/County comments on the 2017 study. Herrera completed the monitoring effort this past winter/spring and is scheduled to issue the findings report by September 30. Herrera staff provided a presentation to the Board on the results and conclusions of the

2020 monitoring effort during the Board's September 9, 2020, meeting, as well as to the Lake Whatcom Management Program Policy Group during its September 23 meeting. The purpose of including the discussion in the September 30 board agenda is to illicit further discussion regarding the assessment findings.

FISCAL IMPACT
None.

RECOMMENDED BOARD ACTION
No action is recommended.

PROPOSED MOTION
Not applicable.

AGENDA BILL Item 9.A		**General Manager's Report**		
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. General Manager's Report		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information from the General Manager in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager's Report

Upcoming Dates & Announcements

Regular Meeting – Wednesday, September 30, 2020 – 8:00 a.m.

Important Upcoming Dates

Lake Whatcom Water & Sewer District			
Regular Board Meeting	Wed Oct 14, 2020	6:30 p.m.	Remote Attendance
Employee Staff Meeting	Thu Oct 15, 2020	8:00 a.m.	Remote Attendance Commissioner Abele to attend
Investment Comm. Meeting	Wed Oct 28, 2020	10:00 a.m.	Remote Attendance
Safety Committee Meeting	Wed Oct 22, 2020	7:30 a.m.	Remote Attendance
Lake Whatcom Management Program			
Data Group Meeting	Thu Oct 8, 2020	9:00 a.m.	Remote Attendance
Policy Group Meeting	Wed Dec 2, 2020	3:00 p.m.	Remote Attendance
Joint Councils Meeting	2020 Meeting Cancelled	-	-
Other Meetings			
WASWD Section III Meeting	Tue Oct 13, 2020	7:00 p.m.	Remote Attendance
Whatcom Water Districts Caucus Meeting	Wed Oct 21, 2020	1:00 p.m.	Remote Attendance
Whatcom County Council of Governments Board Meeting	Wed Oct 14, 2020	3:00 p.m.	Remote Attendance

Committee Meeting Reports

Safety Committee:

- A committee meeting was held on September 24. The committee discussed the status of update of and presentation to the Operation crew of three safety programs (Lockout/Tagout Energy Control, Confined Space, and Workplace Violence); presented the new workplace injury form, and was apprised of the status of installation of backup cameras on all District vehicles. The findings of the general manager's safety inspection of the Operations Department activities on September 21 was also discussed.

Investment Committee:

- No committee meeting has been held since last board meeting.

Upcoming Important Board Meeting Topics

- Lake Whatcom Boulevard Sewer Interceptor Near-term Maintenance
- Sewer Lift Station PLC/UPS Improvement Public Work Contract Award
- General Manager Performance Evaluation
- 2021 Budget Development

2020 Initiatives Status

Administration and Operations

Level-of-Service Analysis

- Facilitate Board development of level-of-service standards for District operations.
  The initial step in completing the Effective Utility Management process is to conduct a self-assessment at varying levels of the organization, which was completed by the board, management team and staff. Results were presented during the August 26 board meeting.

Six-Year Business Plan

- Develop department-specific business plans that define staffing, facility, and equipment needs necessary to meet level-of-service standards over the six-year planning horizon.
  The management team has initiated plan development taking into consideration the results of the Effective Utility Management self-assessment.

Rate Study

- Conduct rate study for the water and sewer utilities for the five-year planning horizon.
  A request for proposals was issued on September 1; proposals are due September 30.

Biennial Budget

- Facilitate Board consideration of shifting from an annual to a biennial budget.
  The board discussed the pros and cons of operating under a biennial budget during the August 26 board meeting.

Bond Rating Review

- Pursue a higher bond rating.
  Bond rating review was discussed during the Investment Committee's July 29 meeting. Staff plans to complete this fall.

Staffing Succession Plan

- Develop a staffing succession plan to address anticipated retirements over the next five years.
  The plan was submitted to the board on August 21.

Job Description Review

- Update all District job descriptions that have not been revised in the last three years.
  Review of job descriptions has been broken into departments and the management team. Review of management team job descriptions are complete, and review of Finance and Engineering department descriptions is underway.

Emergency Response/System Security

Risk and Resilience Assessment

- Develop an America's Water Infrastructure Act-compliant Risk and Resilience Assessment.
  Plan is under development with assistance from the Whatcom County Sheriff's Office under the District's interlocal agreement for emergency planning services.

Cybersecurity Assessment

- Conduct a cybersecurity assessment of the District's IT infrastructure.
  Through the District's insurance provider, implemented ongoing staff/board cybersecurity training platform in November 2019.
  As part of the AWIA Risk and Resilience Assessment, staff have begun mapping the District's IT system.

Emergency Vendor Contracts

- Pursue contracts with applicable vendors for on-call contracts, including contracts for support during periods of emergency response.
  A public works contract template specific to unit-priced contracting has been developed.

Community/Public Relations

General

- Website
  The District's web content is being updated on a regular basis, including regular posts specific to District operations in response to the COVID-19 pandemic.
- Social Media
  Posts are being made to District Facebook and LinkedIn pages regularly; Nextdoor is regularly monitored for District-related posts.
- Press Releases
  Press releases were issued on March 16, 18, 20, and 25 specific to District operations relative to the COVID-19 pandemic. A press release recognizing Drinking Water Week was issued on May 5, and one summarizing the results of the District's 2018-19 audit was issued May 20.

Intergovernmental Relations

- *J. Clary continues to lead WASWD efforts in the statewide Updating Washington's Growth Policy Framework process*
- *City of Bellingham approved the interlocal agreement with the District for emergency water services at the Scenic Avenue intertie*
- *J. Clary presented at and attended the WASWD fall conference September 16-18*
- *J. Clary attended the Bellingham YWCA Leadership Breakfast (virtual) on September 18*

EnviroStars Certification

- Gain EnviroStars Green Business certification.
  The District has completed 11 of 20 required core measures and earned a total of 205 points (core and elective measures) in the certification process. Once all core measures are complete, the District will be certified at the Tier 1-Leader level (300 points are required for Tier 2-Partner).

Lake Whatcom Water Quality

Management Program

- Attend meetings of Lake Whatcom Management Program partners.
  J. Clary attended the Data Group meeting (September 10), Interjurisdictional Coordinating Team meeting (September 17), and Policy Group meeting (September 23).

Onsite Septic System Impact Assessment

- Lead effort in water quality monitoring to assess the impacts of septic systems on the lake.
  Herrera is incorporating city/county/district comments on the draft findings report, and presented the results during the September 9 board meeting and September 23 Lake Whatcom Management Program policy group meeting.

Onsite Septic System Conversion Program

- Pursue connection of septic-served parcels within 200 feet of District sewer system.
  As of September 24, all three properties noticed in 2019 have connected to the District's collection system. No noticed-properties are outstanding.
  A white paper to facilitate analysis of the District's septic conversion policy was issued to the Board on April 9; during its meeting on July 29, the Board elected not to revise the program.

AGENDA BILL Item 9.B	**Engineering Department Report**			
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, District Engineer		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Engineering Department Report		
		2. Summary of District Projects		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District projects and current priorities in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

Lake Whatcom Water & Sewer District
Engineering Department Report

Prepared for the September 30, 2020 Board Meeting
Data Compiled 09/24/20 by RH, BH, RM, KH

Status of Water and System Capacities				
	South Shore ID# 95910	Eagleridge ID# 08118	Agate Heights ID# 52957	Johnson Well ID# 04782
DOH Approved ERUs	**	85	57	2
Connected ERUs	3878	70	44	2
Remaining Capacity (ERUs)	**	15	13	0
Permitted ERUs Under Construction	39	0	0	0
Pre-paid Connection Certificates & Expired Permit	14	0	5	0
Water Availabilities (trailing 12 months)	44	0	0	0
Subtotal - Commitments not yet connected	97	0	5	0
Available ERUs	****	**15**	**8**	**0**

** Per DOH, water system capacity is sufficient for buildout. Oct 2018

Annual Reports		
Name Of Report	**Deadline**	**Completed**
Report Number of Sewer ERUs to City of Bellingham Prepared by: Bill	January 15	March 3, 2020
Other Reports		
Name Of Report	**Deadline**	**Last Completed**
Water Right Permit No. G1-22681 Development Extension	Due Every 5 Years Next Due Feb 15, 2023	March 20, 2018
Water Right Permit No. S1-25121 Development Extension	Due Every 5 Years Next Due March 30, 2023	March 20, 2018

Developer Extension Agreements			
D1801	**Sudden Valley Community Association - Area Z Fire Hydrant**		
Scope	Installation of Fire Hydrant		
Sign Date	8/16/2018	Expiration Date	8/16/2021 (3 years)

Prior to Commencing Construction	Prior to Final Acceptance
☒ 1. District Engineer approves design	☒ 1. District inspects & approves facilities as complete
☒ 2. Reimbursement of District Engineer review costs	N/A 2. District receives water meters for each service
☒ 3. Copy of insurance policy	☒ 3. District accepts record drawings
☒ ~~4. Copies of recorded easement~~ *n/a: to be recorded prior to final acceptance, property owned by Sudden Valley Community Association*	☒ 4. District accepts easements & title insurance
☒ 5. Copies of permits	☐ 5. District receives warranty bond or like security
☒ 6. Pay Developer Conformance Deposit *Receipt #16291 8/14/18*	☐ 6. District receives maintenance bond
☒ 7. Developer delivers performance bond *Assignment of savings account received in the amount of $135,798 and dated 8/14/2018. This will cover up to $90,532 of constructed facilities*	☒ 7. District receives and approves Bill of Sale
☒ 8. Pays 25% of total amount of general facilities connection fees due to District *n/a: no new connection*	N/A 8. District receives a copy of recorded plat or legal description
☒ 9. Pays District Administration, Legal Services, and Inspection Deposit *Receipt #16291 8/14/18*	☒ 9. District receives legal description of property
☒ 10. District Issues Notice to Proceed w/Construction	N/A 10. District receives Latecomers Reimbursement fees due to otherDevelopers (if applicable)
	☒ 11. Developer pays any applicable Supplemental DEA Processing/General Administrative fees
	N/A 12. District receives signed and notarized Latecomers Reimbursement Agreement (when applicable)
	☐ 13. Developer has reimbursed the District for all incurred costs associated with DEA
	☐ 14. Developer has met and completed all local, state, and federal permit requirements
	☒ 15. Copies of recorded easement on file with District

Tasks/Notes

- 7/3/2018 DEA Application Received
- 7/25/2018 Board Authorizes DEA with Conditions
- 8/7/2018 SVCA Submits Hydraulic Analysis
- 8/14/2018 SVCA submits drawings, DEA, assignment of savings, insurance certificate, check for $6,750 ($5,000 deposit for review & inspection, $1,000 conformance deposit, and $750 for processing fee), and shallow pipe depth memo.
- 9/5/2018 District completes review of hydraulic analysis. 1,250 GPM for 90 minutes is available.
- 9/5/2018 SVCA submits revised plans. Review on hold until SVCA makes another deposit of $5,329.66 to cover legal and engineering review.

Continued on next page

Developer Extension Agreements (cont'd)	
D1801	**Sudden Valley Community Association - Area Z Fire Hydrant**

Tasks/Notes (cont'd)

- 12/17/2018 Deposit of $5,329.66 received
- 1/23/2019 Meeting with SVCA to review revised plans received 1/9/2019
- 2/26/2019 SVCA submits revised plans
- 3/20/2019 District returns plan review comments to Wilson Engineering
- 4/1/2019 Deposit of $2031.91 received.
- 4/9/2019 District approves plans and issues notice to proceed.
- 6/3/2019 Preconstruction meeting with SVCA, contractor, and Wilson to coordinate construct and inspections. Contractor will be starting work soon.
- 8/5/2019 Punch list inspection
- 8/15/2019 Final acceptance checklist/punch list sent to SVCA
- 9/19/2019 Deposit of $13,842.73 received.
- 10/22/2019 District Preparing Bill of Sale, Easement, and Supplemental Conditions agreemnt
- 11/7/2019 District receives record drawings
- 11/18/2019 Supplemental conditions and municipal utility easement sent to SVCA
- 11/18/2019 Deposit of $2,136.39 received.
- 12/16/2019 District reviewing SVCA's proposed changes to bill of sale and supplemental conditions and municipality utility easement agreement received 12/16/19
- 1/15/2020 District receives signed supplemental conditions and municipality utility easement agreement
- 2/11/2020 District receives and signs bill of sale
- 3/6/2020 Bill of Sale Recorded
- 3/17/2020 Sent status letter to SVCA for final acceptance, need maintenance bond & ecology permit documentation to close out project

Summary of District Projects

Report Prepared 9/17/2020

Line #	Project Number	Project Title / Tasks	Approved Budget	Spent to Date	Amount Remaining	2020 Schedule J F M A M J J A S O N D
-16	~~C1708~~	~~Ball Check Valves at Austin and Beaver Sewer Pump Stations~~	$8,519	$8,961	$442	
-14	~~C1716B~~	~~Geneva Booster Station - PRV's,Backflow, Roof~~	$40,000	$38,920	$1,080	
-12	~~A1901~~	~~Whatcom County Region GIS Imagery Partnership 2019 Flight~~	$1,000	$1,000	$0	
-11	~~C1904~~	~~Comprehensive Sewer Plan Update~~	$79,832	$80,143	$311	
-10	~~C2001~~	~~Demolish Old Concrete Resevoir at 1010 Lakeview St~~	$55,000	$46,438	$8,562	
-9	~~C2004~~	~~Quick Connect Fitting Kit for CAT Backhoe~~	$4,000	$3,343	$657	
-8	~~C2005~~	~~Used Forklift~~	$20,000	$19,457	$543	
-7	~~C2008~~	~~Tool Truck with Snowplow and Sander Attachments~~	$86,300	$0	$86,300	
-6	~~C2009~~	~~Flush-Vac Truck~~	$525,000	$0	$525,000	
-5	~~A2020~~	~~Design and Construction Standards Update~~	$8,175	$6,613	$1,562	
-4	~~A2022~~	~~Onsite Records Management Assessment~~	$5,952	$5,952	$0	
-3	~~M2023~~	~~District Facilities Pavement Striping~~	$2,476	$2,883	$408	
2	C1716A	Dead End Blowoffs	$20,000	$18,668	$1,332	
4	C1802	Dellesta, Edgewater & Euclid Sewer Pump Stations	$1,057,472	$388,625	$668,847	
15.5	M1811	North Shore FM Stream Crossing Protection (FIX WASHOUT)	$28,602	$3,053	$25,549	
16	C1814	Agate Heights WTP and Opal Booster Upgrades	$124,320	$66,824	$57,496	
20	A1902	Compulsory Sewer Connections	$20,000	$563	$19,438	
22	C1908	Fire Flow Improvements - Hydraulic Model Calibration	$15,000	$4,557	$10,444	
23	C1909	Little Strawberry Bridge Water Main Predesign & Estimate	$20,000	$0	$20,000	
24	C1910	SVWTP and AHWTP Misc Component Replacement	$72,000	$60,262	$11,738	
25	C1913	SVWTP 20-Year Facility Plan	$159,710	$32,849	$126,861	
26	M1917	AB PLC-5 Replacements and UPS Improvements	$100,000	$5,282	$94,718	
27	A1919	OSS Impact Assessment	$100,000	$88,561	$11,439	
29	C2002	Johnson Well Storage Building - New Siding and Paint	$27,500	$0	$27,500	
30	C2003	Sewer System Rehab and Replacement Projects	$71,460	$38,929	$32,531	
33	C2006	SCADA Telemetry - Managed Ethernet Switches	$20,000	$0	$20,000	
34	C2007	Administrative Server Hardware	$25,000	$0	$25,000	
37	C2010	Beaver, Flat Car, SVPS Motor Leads	$18,000	$0	$18,000	
38	C2011	Convert Eagleridge Booster to Metering Station	$30,000	$2,979	$27,021	
39	C2012	Austin-Fremont PRV Rebuild	$10,000	$0	$10,000	
40	C2013	Geneva and Div 22 Res Impressed Current Cathodic Protection	$40,000	$0	$40,000	
41	C2014	Water Meters and Registers	$13,000	$4,230	$8,770	
42	C2015	Fire Hydrant Flow Testing Kit	$3,500	$0	$3,500	
43	C2016	SVWTP Misc Component Replacement	$40,000	$0	$40,000	
44	C2017	Fire Hydrant Stortz Adapters	$12,000	$7,738	$4,262	
45	M2018	Annual Asphalt Patching	$35,000	$11,750	$23,250	
46	M2019	Annual Tree Trimming	$10,000	$0	$10,000	
48	A2021	AWIA Risk Assessment and Emergency Response Plans	$10,000	$0	$10,000	
49	M2024	Landscape Maintenance	$6,000	$0	$6,000	
50	A2025	Rate Study	$30,000	$0	$30,000	
51	C2026	Electrical On-Call Unit Price Contract	$0	$0	$0	

NOTATION LEGEND

	A____	Administrative Project			p	Planned (labor not started)
	C____	Capital Project			a	Active (labor underway)
	M____	Maintenance Project			c	Completed (no further labor needed)
		Sewer Project (Green Font)			t	Target Completion
		Water Project (Blue Font)				
		Sewer and Water Project (Black Font)				

AGENDA BILL Item 9.C		**Finance Department Report**		
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Debi Denton, Finance Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Monthly Budget & Investment Report		
		2.		
		3.		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District finances in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

LAKE WHATCOM WATER AND SEWER FUND SUMMARY 2020

	401 WATER	402 SEWER	460 BOND RESERVE (RESTRICTED)	TOTAL
2020 REVENUES	1,824,528	2,964,234	-	4,788,762
2020 EXPENDITURES	(1,721,271)	(2,164,043)	-	(3,885,314)
2019 BALANCE CARRYOVER	987,272	1,363,375	772,335	3,122,982
2019 CONTINGENCY CARRYOVER	460,000	787,088		1,247,088
2020 BALANCE	$1,550,529	$2,950,654	$772,335	$5,273,518
2020 ALLOCATED TO OPERATING RESERVES	-$520,000	-$420,000		-$940,000
2020 ALLOCATED TO CONTINGENCY	-$460,000	-$796,088		-$1,256,088
AVAILABLE 2020 BALANCE	$570,529	$1,734,566	$772,335	$3,077,430

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget 2020	8/31/2020	67%
WATER - 401				
REVENUES				
	EPA Grant Water Quality			
401-333-66-00-00	North Shore Sampling Interlocal Agreement	40,000		
401-343-40-10	Water Sales Metered (4% base rate increase) *	2,632,739	1,674,971	63.62%
401-343-40-20	DEA Permits		(9,311)	
401-343-41-10	Permits (15 new connection permits) $6,000	90,000	121,895	135.44%
401-343-81-10	Combined Fees (Increase in Lien and Lock fees)	35,000	11,709	33.45%
401-359-90-00	Late fees	55,000	14,573	26.50%
401-361-11-00	Investment Interest	30,000	10,262	34.21%
401-369-10-00	Sale of scrap metal and surplus	3,000	96	0.032
401-369-10-01	Miscellaneous	1,000	333	33.30%
401-369-40-00	Judgements and Settlements	-	-	
401-395-10-00	Sale of Capital Assets	-	-	
401-395-20-00	Insurance Recoveries	-	-	
	TOTAL REVENUES	**2,886,739**	**1,824,528**	**63.20%**
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget 2020	8/31/2020	67%
SEWER - 402				
REVENUES				
402-343-41-10-02	Permits (15 new connection permits) $9,000	135,000	148,209	109.78%
402-343-50-11	Sewer Service Residential (2.5% rate increase) *	4,186,946	2,781,505	66.43%
402-343-50-19	Sewer Service Other	4,500	3,153	70.07%
402-343-50-80	Latecomer's Fees	-	-	0
402-361-11-00-02	Investment Interest	30,000	8,510	28.37%
402-361-40-00-80	ULID 18 Interest/Penalties	4,000	4,209	105.23%
402-368-10-00-80	ULID 18 Principal Payments	15,000	9,937	66.25%
402-369-10-00-02	Sale of scrap metal and surplus	3,000	96	0.032
402-369-10-00-02	Miscellaneous	1,000	333	33.30%
402-369-40-02	Judgements and Settlements	-	8,282	0
402-395-10-00-02	Sale of Capital Assets	-	-	0
402-395-20-02	Insurance Recoveries	-	-	0
	TOTAL REVENUES	**4,379,446**	**2,964,234**	**67.69%**
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
WATER - 401	***OPERATING EXPENDITURES***			
401-534-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	239,948	67.80%
401-534-10-20	Admin Personnel Benefits	174,250	101,266	58.12%
401-534-10-31	Gen Admin Supplies/Equipment (Master Meter Software)	35,000	17,205	49.16%
401-534-10-31-01	Meetings/Team building	2,000	864	43.20%
401-534-10-40	Merchant Services Fees	10,000	7,560	75.60%
401-534-10-40-01	Bank Fees		583	
	Interlocal - Invasive Species (City) (8% increase)	55,000	50,000	
	Interlocal - Lake Whatcom Tributary Monitor (County)	5,000	6,276	
	North Shore Sampling (County Interlocal Agreement)	100,000	88,561	
	Mutt Mits	5,000	5,575	
401-534-10-41	Water Quality Assurance Programs (TOTAL)	165,000	150,412	
	County Auditor Filing Fees	*3,000*		
	Statement processing	*12,500*		
	Answering Service	*750*		
	Time clock system	*750*		
	Financial Software Maintenance	*5,000*		
	Web Check services	*2,500*		
	CPA (Financial statements)	*3,000*		
	Rate Study	*15,000*		
	State Audit	*8,000*		
	Docuware maintenance and upgrade	*4,500*		
	Computer support	*15,000*		
	Anti virus subscription	*500*		
	Building security	*1,000*		
	Building custodial	*5,000*		
	Pest control	*500*		
	Landscaping service	*3,000*		
	South Whatcom Fire (hydrant maintenance)	1,000		
	Scada System Software Maintenance - Operations	*3,750*		
	Cyber Security AWIA Assessment	*5,000*		
	SCADA/PLC Support - Engineering/Operations	*5,000*		
	Cartegraph - Engineering/Operations	*2,500*		
	Auto Desk - Engineering	*500*		
	GIS Partnership (County)	*500*		
	Rockwell - Engineering/Operations	*250*		

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
	IT Pipes	*750*		
	ESRI - ARC GIS	*750*		
	Innovyze - Engineering	*1,250*		
	Master Meter	2,000		
	Cyberlock software	*500*		
	Whatcom County Emergency Management	*10,000*		
	Misc (Bid notices etc.)	*2,500*		
401-534-10-41-01	Professional Services (TOTAL)	100,250	75,719	75.53%
401-534-10-41-02	Water Engineering Services	21,000	13,503	64.30%
401-534-10-41-03	Water Legal Services	20,000	12,660	63.30%
401-534-10-41-04	DEA expenditures	-	2,200	
401-534-10-42	Communication	30,000	21,396	71.32%
401-534-10-45	Admin Lease (copy/printers)	5,000	3,514	70.28%
401-534-10-46	Property Insurance	72,000	1,276	1.77%
401-534-10-49	Admin Misc.	500	25	5.00%
401-534-10-49-01	Memberships/Dues/Permits	10,000	13,019	130.19%
401-534-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	72,670	63.19%
401-534-40-43	Training & Travel	17,500	5,034	28.77%
401-534-40-43-01	Tuition reimbursement	500	-	0.00%
401-534-50-31	Operations/Maintenance Supplies	95,000	96,996	102.10%
401-534-50-31-01	Small Assets/tools	30,000	30,653	102.18%
401-534-50-48	Operations Repair/Maint contracted work	35,000	30,239	86.40%
401-534-50-49	Insurance Claims	2,500	-	0.00%
401-534-60-41	Operations Contracted (water testing)	12,500	7,056	56.45%
401-534-60-47	Water City of Bellingham	40,000	6,183	15.46%
401-534-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	575,561	401,675	69.79%
401-534-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	169,205	68.34%
401-534-80-32	Fuel	15,000	5,974	39.83%
401-534-80-35	Safety Supplies (Ergonomic Assessment)	10,000	4,824	48.24%
401-534-80-35-01	Safety Supplies Boots	1,250	504	40.32%
401-534-80-35-02	Emergency Preparedness	5,000	2,478	49.56%
401-534-80-43-00	Water - Operatoins Training/Travel/Certification		211	
401-534-80-47	General Utilities (Electric, gas, water, garbage)	110,000	77,966	70.88%
401-534-80-49	Laundry	2,000	1,058	52.90%
	Payroll liability		(613)	
	WATER OPERATING EXPENDITURES	**2,313,301**	**1,573,263**	**68.01%**

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
DEBT SERVICE				
401-591-34-77-01	Redemption of Long Term Debt Geneva AC Mains	119,938		
401-591-34-77-02	Redemption of Long Term Debt Div 22 Reservoir	65,475		
401-592-34-83-01	Debt Service Interest Geneva AC Mains	28,785		
401-592-34-83-02	Debt Service Interest Div 22 Reservoir	17,678		
SYSTEM REINVESTMENT				
	2019 System Reinvestment Projects	105,000		
	2020 System Reimvestment Projects	457,400		
401-534-10-41-20	20 Year Plan for SVWTP C19-13		32,454	
401-594-34-62-01	Water Structures		69,815	
401-594-34-63-01	Water System		32,181	
401-594-34-64-01	Water Equipment		13,558	
WATER FUND	**TOTAL WATER REVENUES**	**2,886,739**	**1,824,528**	
	TOTAL WATER EXPENDITURES	**(3,107,577)**	**(1,721,271)**	
	2019 BALANCE CARRYOVER	**987,272**	**987,272**	
	2019 CONTINGENCY CARRYOVER	**460,000**	**460,000**	
	2020 ALLOCATED TO OPERATING RESERVES	**(520,000)**	**(520,000)**	
	2020 ALLOCATED TO WATER CONTINGENCY	**(460,000)**	**(460,000)**	
	AVAILABLE 2020 YEAR END BALANCE	**246,434**	**570,529**	

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
SEWER - 402				
OPERATING EXPENDITURES				
402-535-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	239,947	67.80%
402-535-10-20	Admin Personnel Benefits	174,250	101,263	58.11%
402-535-10-31	Gen Admin Supplies/Equipment	20,000	18,983	94.92%
402-535-10-31-01	Meetings/Team building	2,000	1,039	51.95%
402-535-10-40	Merchant Services Fees	10,000	7,560	75.60%
402-535-10-40-01	Bank Fees	-	473	
	County Auditor Filing Fees	*3,000*		
	Statement processing	*12,500*		
	Answering Service	*750*		
	Time clock system	*750*		
	Financial Software Maintenance	*5,000*		
	Web Check services	*2,500*		
	CPA (Internal audit and Financial statements)	*3,000*		
	Rate study	*15,000*		
	State audit	*8,000*		
	Docuware maintenance and upgrade	*4,500*		
	Computer support	*15,000*		
	Cyber Security AWIA Assessment	*5,000*		
	Anti virus subscription	*500*		
	Building security for offices	*1,000*		
	Building custodial	*5,000*		
	Pest control	*500*		
	Landscaping service	*3,000*		
	Scada System Software Maintenance - Operations	*3,750*		
	Camera Van Software	1,500		
	SCADA/PLC Support - Engineering/Operations	*5,000*		
	Cartegraph - Engineering/Operations	*2,500*		
	Auto Desk - Engineering	*500*		
	GIS Partnership (County)	*500*		
	Rockwell - Engineering/Operations	*250*		
	IT Pipes	*750*		
	ESRI - ARC GIS	*750*		
	Innovyze - Engineering	*1,250*		

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
	Cyberlock software	*500*		
	Whatcom County Emergency Management	*10,000*		
	Misc (Bid notices etc.)	*2,500*		
402-535-10-41-01	Professional Services (TOTAL)	100,750	75,119	74.56%
402-535-10-41-02	Engineering Services	19,000	9,321	49.06%
402-535-10-41-03	Legal Services	20,000	16,552	82.76%
402-535-10-41-04	DEA expenditures		-	
402-535-10-42	Communication	30,000	21,433	71.44%
402-535-10-45	Admin Lease (copy/printers)	5,000	3,514	70.28%
402-535-10-46	Property Insurance	72,000	1,276	1.77%
402-535-10-49	Admin Misc.	500	60	12.00%
402-535-10-49-01	Memberships/Dues/Permits	8,000	7,309	91.36%
402-535-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	72,670	63.19%
402-535-40-43	Training & Travel	17,500	3,912	22.35%
402-535-40-43-01	Tuition reimbursement	500	-	0.00%
402-535-50-31	Operations/Maintenance Supplies	55,000	22,031	40.06%
402-535-50-31-01	Small Assets/tools	25,000	16,390	65.56%
402-535-50-48	Operations Repair/Maint contracted work	80,000	60,781	75.98%
402-535-50-49	Insurance Claims	2,500	-	0.00%
402-535-60-41	Operations Contracted (generator load testing)	15,000	985	6.57%
402-535-60-47	Sewer City of Bellingham Treatment Fee	680,000	556,657	81.86%
402-535-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	483,494	322,971	66.80%
402-535-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	135,049	54.55%
402-535-80-32	Fuel	13,000	7,366	56.66%
402-535-80-35	Safety Supplies (Ergonomic Assessment)	10,000	4,786	47.86%
402-535-80-35-01	Safety Supplies Boots	1,250	504	40.32%
402-535-80-35-02	Emergency Preparedness	5,000	2,478	49.56%
402-535-80-43-00	Operations Training/Travel/Certification		851	
402-535-80-47	General Utilities (Electric, gas, water, garbage)	100,000	74,008	74.01%
402-535-80-49	Laundry	2,000	1,595	79.75%
	SEWER OPERATING EXPENDITURES	**2,668,234**	**1,786,883**	**66.97%**

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	8/31/2020	67%
DEBT SERVICE				
402-591-35-72-03	2016 Bond Principal Payments	425,000	-	
402-592-35-83-03	2016 Bond Interest Payments	218,176	109,088	
SYSTEM REINVESTMENT				
	2019 Sewer System Reinvestment Projects	770,000		
	2020 Sewer System Reinvestment Projects	520,200		
	Sewer Comp Plan C19-04		23,076	
402-594-35-62-02	Sewer Structures		171,339	
402-594-35-63-02	Sewer System		50,673	
402-594-35-64-02	Sewer Equipment		22,984	
402-594-35-64-02	Sewer Equipment (Flush/Vac Truck)	525,000		
SEWER FUND	**TOTAL SEWER REVENUES**	**4,379,446**	**2,964,234**	
	TOTAL SEWER EXPENDITURES	**(5,126,610)**	**(2,164,043)**	
	2019 BALANCE CARRYOVER	**1,363,375**	**1,363,375**	
	2019 CONTINGENCY CARRYOVER	**787,000**	**787,000**	
	2020 ALLOCATED TO SEWER OPERATING RESERVES	**(420,000)**	**(420,000)**	
	2020 ALLOCATED TO SEWER CONTINGENCY	**(796,000)**	**(796,088)**	
	AVAILABLE 2020 YEAR END BALANCE	**187,211**	**1,734,478**	

LAKE WHATCOM WATER AND SEWER

INVESTMENTS/CASH AS OF 8/31/2020

Petty Cash			$ 1,600		
Cash			$ 907,998		0.35%
Public Funds Account			$ 502,522		0.10%
LGIP			$ 1,035,629		0.31%
			$ 2,447,749		
			PAR VALUE		YIELD
RFCO-ProEquity	Non-callable		$ 1,071,488	Jan-21	2.71%
FHLB - Pro equity	Callable		$ 1,002,619	Nov-22	1.55%
FHLB - Pro equity	Non-callable		$ 751,663	Apr-23	0.80%
US Bank			$ 2,825,770		
TOTAL			**$ 5,273,519**		
USE OF FUNDS:					
Reserved		$ 772,334			
Contingency		$ 1,256,088			
Unrestricted		$ 3,245,097			
			$ 5,273,519		

AGENDA BILL Item 9.D	**Operations Department Report**			
DATE SUBMITTED:	September 24, 2020	MEETING DATE:	September 30, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Brent Winters, Operations Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Operations Department Report		
		2. Status of District Water & Sewer Systems		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District operations in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

Lake Whatcom Water & Sewer District
Operations & Maintenance Department Report

Prepared for the September 30, 2020 Board Meeting
Data Compiled 09/24/20 by RH, BW, RM

State Required Report Status													
Monthly Reports													
Name Of Report		**Completed**											
Chlorination Report Agate Heights Prepared by: Kevin	Postmarked by the 10th of month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
		x	x	x	x	x	x	x	x	x			
Surface Water Treatment Rule Report (SVWTP) Prepared by: Kevin	Postmarked by the 10th of month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
		x	x	x	x	x	x	x	x	x			
Annual Reports													
Name Of Report	**Deadline**	**Completed**											
WA State Cross Connection Report Prepared by: Rich	May	May 6, 2020											
OSHA 300 Log Prepared by: Rich	February 1	January 27, 2020											
Water Use Efficiency Performance Report Prepared by: Kevin	July 1	February 24, 2020											
Community Right to Know (Hazardous Materials) Prepared by: Rich & Brent	March 31	January 14, 2020											
Consumer Confidence Reports Prepared by: Kevin	June 30	Geneva		SV		EagleR		Agate Ht					
		6/1/20		6/1/20		6/1/20		6/1/20					
Other Reports													
Name Of Report	**Deadline**	**Last Completed**											
CPR/First Aid Training Coordinated by: Rich	Due Biennially Next Due 2021	March 23, 2019											
Flagging Card Training Coordinated by: Rich	Due Triennially Next Due 2022	June 6, 2019											

Safety Program Summary Completed by Rich Munson & Brent Winters			
Summary of Annual Safety Training *2020 Testing Period - Jan 1, 2020 to May 1, 2020*			
	Enrollments	Completions	% Complete
Engineering - Managers	69	69	100%
Engineering - Staff	25	25	100%
Field Crew - Managers	224	224	100%
Office - Managers	15	15	100%
Office - Staff	52	52	100%
Overall	**385**	**385**	100%

Safety meetings for the field crew take place every Friday at 7 a.m.

Dates of Completed Safety Committee Meetings		
1/21/2020	5/20/2020	9/24/2020
2/18/2020	6/18/2020	
3/17/2020	7/29/2020	
4/30/2020		

Summary of Work-Related Injuries & Illnesses						
	Current Month	2020	2019	2018	2017	2016
Total Number of Work Related Injuries Defined as a work related injury or illness that results in: ・Death ・Medical treatment beyond first aid ・Loss of consciousness ・Significant injury or illness diagnosed by a licensed health care professional ・Days away from work (off work) ・Restricted work or job transfer	0	0	0	0	1	0
Total Number of Days of Job Transfer or Restriction (light duty or other medical restriction)	0	0	0	0	13	0
Total Number of Days Away from Work (at home, in hospital, not at work)	0	0	0	0	4	0
Near Misses	0	0	2	2	1	

Safety Coordinator Update

Status of District Water and Sewer Systems
Prepared by Brent Winters Operations and Maintenance Manager
9/30/2020 Board Meeting

Safety Activities

1. Continuing social distancing of crew. Kevin Cook is reporting directly to the water plant, the rest of the crew is reporting directly to their assigned vehicle and then attending the morning briefing via "Go to Meeting."
2. No injuries or near misses.
3. Daily safety reminders directly relevant to the day's tasks.
4. Jobsite tailgate meetings by project lead.

Water Utility Activities

Water Treatment Plants

1. Sudden Valley
    a. Plant is operating well, averaging 0.60 million gallons per day (MGD).
    b. Working with Gray & Osborne on the Capital Upgrades Project.
2. Agate Heights
    a. Plant is operating well, assisting Engineering as needed with Capital Upgrades project.

Distribution System

a. District crew installed 2 new water connections this reporting period.
b. Repaired 4 water lateral leaks this reporting period.
c. Excavated and installed six (2) pressure reducing station vault drains.

Sewer Utility Activities

Lift Stations

1. Lift stations are in normal operation.
2. Tri-County Marine completed scheduled maintenance to six generators.

Collection System

1. Televising new sewer connections that have been cut in.
2. Televised new Country Club HDPE main and found it to be in good working order.
3. Contractors installed eight (8) new sewer connections this reporting period.

Fleet

Vehicles

1. All vehicles are in service.

Equipment

1. All equipment is in service.
2. New vac truck is on order (October delivery).
3. New service truck is on order (December delivery).

Facilities

Shop Building

1. Performing shop and grounds maintenance as fill in work between projects.

Development

1. Inspector is actively working with thirteen (19) contractors making connection to our systems.